CANADIAN IMMIGRANT'S HEALTH, HEALTH CARE, AND INCOME

HEALTH, HEALTH CARE, AND ECONOMIC EXPERIENCES OF IMMIGRANTS IN CANADA: AN INTERDISCIPLINARY ANALYSIS

By SOPHIYA GARASIA, B.Sc., MPH

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AUTHOR: Sophiya Garasia, B.Sc., MPH (McMaster University)

SUPERVISOR: Dr. Godefroy Emmanuel Guindon

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Lay Abstract

Immigrants in Canada are a highly diverse group, differing in language, ethnicity, and income levels. Not only are some immigrant groups at high risk for developing certain health conditions, they face unique challenges in using health care services. There is a need to better understand the prevalence of health conditions among immigrants as well as immigrants' use and preferences for health care services. This thesis, divided in three independent chapters, 1) investigates whether the mental health and mental health service use of children and youth in immigrant households are influenced by neighbourhood immigrant density, 2) investigates what impact heart attacks and strokes have on income variables in immigrants who work, and 3) explores preferences for home care and long-term care among immigrant and non-immigrant older adults in Ontario.

Abstract

Understanding immigrants' use and preferences for health care services is essential to be able to shape a health care system that is equitable. Without doing so, we risk population health deterioration that can be both costly for immigrants and society. Given the bidirectional relationship between income and health, it also becomes important to understand how immigrants respond economically to health shocks. With this understanding, the objectives of this thesis are as follows: 1) investigate whether neighbourhood immigrant concentration influences the relationship between immigrant status and mental health problems and mental health service use among youth and children in Ontario, 2) assess the impacts of a cerebrovascular or cardiovascular health shock on income variables (i.e., employment income, governmental income, total income, and household income) in heterogenous immigrant populations in Canada, and 3) explore preferences for home care and long-term care among older adults in Ontario. Novel findings from each of the studies include: 1) immigrants show lower odds of having elevated mental health problems and using mental health services compared to non-immigrants. The probability of using mental health services among immigrants is lower in immigrant-concentrated neighbourhoods, 2) a cardiovascular or cerebrovascular health shock does not cause a significant reduction in employment income. Also, the impact of a cardiovascular or cerebrovascular health shock on income variables is not significantly different than the impact of other types of health shocks, and 3) individuals are willing to pay approximately $4000 extra per month for home care compared to long-term care. Other attributes preferred include having a private room, living at a short distance to family/friends, and having culturally adapted care. This program of research advances intersectoral research on immigrant health and health care use.

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"Work hard and stay humble". These words passed down to me by my father at an early age have always been with me, but it is through my PhD experiences that I truly understood its meaning. Completing this dissertation was no easy feat given the challenges I faced. But, through it all, I knew I had to keep going. I had to do it for myself, and I had to do it for my mother and grandmothers who did not have the privilege to even finish high school. Beyond realizing how privileged I am to be able to pursue a PhD, I learned that this work was not mine alone. The ideas in this dissertation stemmed from inspiration from great researchers, including my committee members, and community-members that I have engaged with. It truly does take a village to complete a PhD dissertation! That being said, there are a few people that I want to especially thank!

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"They have no idea what it is like
to lose home at the risk of
never finding home again
to have your entire life
split between two lands
and become the bridge between two countries"

- Immigrant, Rupi Kaur

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List of Abbreviations

ADL	Assistance of Daily Living
AIC	Akaike Information Criterion
ALC	Alternate Level of Care
BIC	Bayesian Information Criterion
CC	Cardiovascular or Cerebrovascular
CI	Confidence Interval
CMHO	Children's Mental Health Ontario
coef	Coefficient
DAD	Discharge Abstract Database
DCE	Discrete Choice Experiment
DSM-5	Diagnostic and Statistical Manual of Mental Disorders
HCCSS	Home and Community Care Support Services
ICC	Intraclass Correlation Coefficient
ICD-10	International Classification of Diseases 10th version
IFHP	Interim Federal Health Program
IMDB	Longitudinal Immigration Database
IRCC	Immigration, Refugees and Citizenship Canada
LHIN	Local Health Integration Networks
LTC	Long-term Care
MINI-KID	Mini International Neuropsychiatric Interview for Children and Adolescents
NBER	National Bureau of Economic Research
OCHS	Ontario Child Health Study
OECD	Organisation for Economic Co-operation and Development
OHT	Ontario Health Team
OR	Odds Ratio
SD	Standard Deviation
UK	United Kingdom
USA	United States of America
WTP	Willingness-to-pay

Declaration of Academic Achievement

I, Sophiya Garasia, declare that this thesis titled, "Health, Health Care, and Economic Experiences of Immigrants in Canada" and the work presented in it are my own. I conceptualized the three original studies myself, but received feedback from my committee members on the scope of the studies. For Chapters 2-4, I independently analyzed and interpreted the data. For Chapter 4, support was provided by four Research Assistants in the form of screening and extracting studies for the literature review and conducting and transcribing qualitative interviews. I received guidance on interpreting results from Dr. Katholiki Georgiades for Chapter 2, from Dr. Arthur Sweetman for Chapter 3, and Dr. Emmanouil Mentzakis for Chapter 4. Dr. Sweetman also helped me to create the questionnaire that was utilized in Chapter 4. My supervisor, Dr. Emmanuel Guindon provided me guidance at all stages of this dissertation. Committee members Dr. Sweetman, Dr. Guindon, and Dr. Georgiades provided revisions for chapters 2-4.

Chapter One: Introduction

1.0 Preamble

Immigrants are often categorized as a "vulnerable" population in the field of health care - a group that faces an elevated risk for developing poor health outcomes and receiving inadequate care (Derose, Escarce, and Lurie 2007). During the Covid-19 pandemic, the vulnerability of immigrants was highlighted in the media and literature given the disproportionately higher number of cases and deaths in immigrant-concentrated neighbourhoods (Ng 2020; O'Neill et al. 2022; Pelley 2022). This was the case for several reasons including but not limited to the fact that many immigrants were essential workers who continued to work in-person during the pandemic, lived in congregated settings, and/or had low health and English-language literacy which made it difficult for them to follow changing policies.

Recent literature and dialogue discuss the heterogeneity among immigrants and moves away from the term "vulnerability" in favor of "equity-deserving" and "underserved" (Arya and Piggott 2018; Derose, Escarce, and Lurie 2007). It must also be mentioned that there are many ways to interpret the term "immigrant" (Anderson and Blinder 2019). Some organizations and datasets use the terms "newcomers", "foreign-born", and "migrants" instead. Many also include ethnicity, race, and immigration class into the discourse, and interchangeably use the term "immigrant" and "refugee". Misusing the term not only impacts data interpretation and public discourse, it impacts policy design and corresponding implications. With this understanding, in this thesis, I clarified how "immigrants" were defined in each of the studies and also, clarified the definitions of immigrant subgroups where applicable (e.g., long-term immigrants).

The "vulnerability" of immigrants has always intrigued me. When I migrated to Canada and lived in the South Asian-concentrated neighbourhood of Scarborough, Canada, I heard about the challenges that community members faced in accessing care and the distrust they had of the health care system. To them, it was easier to get care "back home". When I moved to a multicultural neighbourhood in Etobicoke, I realized that people's experiences of health and health care differed by their support system and sociodemographic background. When I moved to Hamilton, I learned that although there was a high congruence in neighbourhood immigrant concentration and number of community immigrant services, some immigrants lived in areas with minimal to no accessible health and social services nearby.

Reading through the literature, I discovered that very little has been published on the interaction between neighbourhood immigrant concentration and household level immigrant status on mental health outcomes and mental health services use in the Canadian context. Much less had been published on the economic effects of a health shock in immigrant groups, and no studies, to my knowledge, looked at how these effects may differ across heterogenous immigrant groups. Lastly, there were no studies that had explored home care and long-term care preferences among immigrants. I developed my three research questions based on my above experiences and the understanding of literature gaps on health and health care experiences of immigrants in Canada.

This sandwich thesis is organized as follows: Chapter 1 is an introductory chapter which sets the broad context for the following three independent original studies (Chapters 2-4). It discusses important facts, definitions, literature, and concepts related to the umbrella topic of this thesis -

health, health care, and economic experiences of migrants in Canada. Chapter 2 is a study investigating the influence of neighbourhood immigrant concentration on the association between immigrant status and elevated mental health problems and mental health service use among youth and children in Ontario, using multi-level modelling. Chapter 3 is an empirical study that investigates the causal impacts of a cerebrovascular or cardiovascular health shock on income variables in heterogenous immigrant populations in Canada. Chapter 4 is an experimental study that explores preferences for home care and long-term care among older adults in Ontario. Finally, the concluding chapter, Chapter 5, summarizes the main results, and discusses the theoretical, methodological, and policy implications of this thesis as well as its strengths and limitations.

1.1 Background

Immigration world-wide and in Canada

In the past decade, with increased globalization and the large number of humanitarian and climate catastrophes, there has been a mass movement of individuals within (internal migration) and between (international migration) countries. In 2020, it was estimated that there were 272 million international migrants (IOM UN Migration 2020). Although that is a small fraction of the total world population (approximately 3.5%), the percentage of immigrants is projected to increase tremendously worldwide. Also, trends in immigration were not uniform across the world and continue to change with developing politics, events, and economic, social, and geographical factors. Much of the international migration right now is from low-and-middle income countries to high-income countries, such as Canada (IOM UN Migration 2020).

The 2016 Canadian Census reported 21.9% of the Canadian population to be foreign-born, and 37% of the population to be either immigrants or children of immigrants (second-generation immigrants) (Statistics Canada 2018). At the time, these percentages were estimated to increase to 30% and 49% by 2036, respectively (Statistics Canada 2018). Number of immigrants and their source countries have fluctuated over time, details of which can be found in the Canadian Megatrends article, *150 Years of Immigration in Canada* (Houle and Maheux 2016). Briefly, during the early stages of immigration, most immigrants arrived from Europe, mainly from Italy, Ireland and the United Kingdom (Houle and Maheux 2016; Sweetman 2017). In 2019, the majority of migrants were from India (85,593, 25%), China (30,246, 9%), and the Philippines (27,818, 8%) (Mendicino 2020). Most migrants arrived via the economic class program (196,658; 58%). In terms of other immigration categories, there were 91,311 (27%), 48,530 (14%), and 4,681 (13.7%) who entered via the family class, refugee and protected persons class, and humanitarian and other class, respectively. Ontario received most of the migrants (45%), followed by Quebec (12%), British Columbia (15%) and Alberta (13%) (Houle and Maheux 2016). A roughly equal number of females and males migrated to Canada in 2019, albeit the proportions slightly differed by immigration category (e.g., 48% of immigrants in economic class were females whereas that percentage was 59% in family class) (Mendicino 2020).

Most immigrants choose to live in urban centers which offer employment opportunities and have diverse populations, such as Toronto, Vancouver, and Montreal (Statistics Canada 2018). Atlantic and northern cities have recently seen an upsurge in the number of immigrants however, that is largely due to the design of immigration and labour policies which are promoting immigrants to

these areas of the country (immigrant pilot programs include Atlantic Immigration Pilot and Rural and Northern Immigrant Pilot) (Government of Canada 2019, 2022a).

"Healthy immigrant effect" and "sick immigrant" paradigms

A considerable amount of literature from high-income countries (USA, Canada, Australia, and Western Europe) has investigated the healthy immigrant effect, which states that on arrival immigrants are healthier than non-immigrants in the receiving country, but with time, their health deteriorates to become worse (Markides and Rote 2019; Moullan and Jusot 2014; Vang et al. 2017). In Canada, the health advantage of immigrants on arrival is largely due to selection at two levels: individual and institutional (Vang et al. 2017). At the individual level, immigrants are self-selecting to leave their native country (for a number of reasons) and as such, are more likely to be in health and social condition that allows them to migrate and experience the sometimes-difficult immigration process (Marmot, Adelstein, and Bulusu 1984). At the institutional level, individuals who are healthy and who have high education, professional experience, and show potential to contribute to the Canadian economy are selected (Chiswick, Lee, and Miller 2008; Sweetman 2017). As such, those who migrate to Canada are generally healthier than their Canadian-born counterparts.

The pattern of health deterioration, known as overshoot, where the health of migrants deteriorates with time, converge to that of non-migrants and then become worse, is reportedly due to several factors (Beiser 2005). One of the largest factors is the unhealthy acculturation of a "Western lifestyle" (i.e., losing one's own cultural practices and identity and over time, overcompensating, and adopting unhealthy practices) (Henry et al. 2009; Viruell-Fuentes, Miranda, and Abdulrahim 2012). Other reasons include exposure to stressors at individual (e.g., employment, income), societal (e.g., racism, unequal job opportunities) and organizational (e.g., difficulties in navigating systems including health care) levels. These stressors are reported to build up gradually over years, ultimately leading to a decline in health.

Heterogeneity in the immigrant health effect has been witnessed across ethnicities, age groups, and medical conditions (Beiser 2005; De Maio 2010). In fact, some studies show that immigrants have a health advantage that lasts over their lifetime. Other studies challenge the healthy immigrant effect, and instead, provide results for the "sick immigrant effect" which states that immigrants are unhealthier than their native counterparts, even on arrival (Constant et al. 2018; Pinchas-Mizrachi et al. 2020). This is sometimes the case with refugees who have less strict guidelines for immigration since the main goal of refugee policies is to help those in dire circumstances. Differences in study methodologies and definitions partly explain the variation in the reporting of this effect. Given all this, it is important for studies that focus on immigrant health to continue to study the effect of duration in Canada in developing medical conditions and utilizing services.

Determinants of health and health care service use influencing immigrants

A plethora of theories and conceptual frameworks have been applied to study health, health care use, and economic outcomes of immigrants. One that has been largely used across disciplines is the social determinants of health approach (Chang 2019; Patel et al. 2019). It focuses on the non-medical factors that influence health and health care experiences such as age, education, income

levels, and sex. The social determinants of health literature have shown the importance of considering many of these variables when designing and analysing health and health services research.

Whereas these factors are known to influence the health of immigrants, the process of immigration is a determinant of health in and of itself (Castañeda et al. 2015; Gagnon et al. 2021). The interaction between determinants, including immigrant status, is explained by the theory of intersectionality (Bauer et al. 2021; Viruell-Fuentes, Miranda, and Abdulrahim 2012). Originated in the 1980s to explore oppressive experiences of Black women in society, it is now used in the field of health equity to study how layers of identity influence health and health care use. It explains, for example, why health outcomes of Canadian-born Chinese women differ from Chinese-immigrated women and UK-immigrated women. An intersectional framework explains that variation in outcomes is due to the interaction between multiple determinants of health. It suggests that immigrant groups are heterogenous and differences between groups of immigrants ought to be investigated (Savaş et al. 2021).

There are also particular determinants influencing the health and health care service use patterns of immigrants. For instance, those who do not speak the native languages, belong to visible minority groups, and/or face discrimination, have challenges in accessing health care (Chen, Kazanjian, and Wong 2009; Ng, Pottie, and Spitzer 2011; Um and Lightman 2017; Zimmerman 2005). Health and health care use has also shown to differ by race (Saunders, Lebenbaum, et al. 2018). Wang (2007) has shown that immigrants' accessibility to health care is influenced by the convergence between physician and residents' distribution and diversity (Wang 2011). Some immigrant groups have also shown preferences for one's own cultural traditions as opposed to mainstream care (Um and Lightman 2017). Lastly, low income and unemployment and/or precarious employment have also shown to be associated with poor health and inadequate health care service use among immigrants (Danso 2016; Disney 2021).

Literature on social and health capital shows that determinants also exist and interact at multiple levels: individual, household, and neighbourhood level (Fletcher and Jajtner 2021). In fact, an increasing amount of research show that "place" is very important in shaping the health of people above and beyond individual-level factors. Factors such as ethnic concentration, level of urbanization, physical environment, and income level of the neighbourhood have been reported to influence health and health care experiences (Cutrona, Wallace, and Wesner 2006; Durbin et al. 2015a; Pickett and Wilkinson 2008). Notably, a place can be geographical or social. Where and how people "fit" into their geographical neighbourhood or their social setting influences their likelihood of becoming ill and using services (Georgiades, Boyle, and Duku 2007; Puyat 2013). The concept of person-environment fit, a theoretical extension of the ecological systems concept, explains that the match (or mismatch) between characteristics of a person and characteristics of their environment influence outcomes (Eccles et al. 1993; Magnusson and Stattin 1998). Applied to immigrants, the concept suggests that immigrants on average have better outcomes in areas with high immigrant concentration than immigrants who live in areas with low immigrant concentration.

Health care service use of immigrants

Canada has a national publicly funded health care system, Canadian Medicare, which provides all Canadian residents with access to hospital care and physician services free of charge at point-of-care in accordance with the 1985 Canada Health Act (Vayda and Deber 1984). The provinces and territories are given the responsibility for designing and providing health care insurance plans to their respective residents; however, there are exceptions. For instance, the Interim Federal Health Program (IFHP) offers temporary coverage for basic health services to refugees and asylum seekers (Government of Canada 2022b). Nevertheless, not all individuals in Canada are eligible for provincial health insurance coverage because of their lack of residence status (a requirement according to the Canada Health Act), and the eligibility criteria vary between different provinces. In Ontario, groups without coverage include temporary foreign workers, refugee claimants, asylum seekers, undocumented individuals, non-status migrants, and permanent residents who are in the three-month waiting period after arrival (Barnes 2016; Hutchison et al. 2015). The three-month waiting period policy, however, has been temporarily suspended during the Covid-19 pandemic. A systematic review that synthesizes literature on health and health care use of uninsured immigrants in Canada reports that utilization of health care services such as hospital admissions and primary care physician visits are impeded by a lack of coverage. Two studies included in the review present that those without insurance are more likely to initiate care when their need is urgent compared to those who are insured (Garasia et al. n.d.).

Many quantitative studies compare health care service use among native-born Canadians and the immigrant population. While some studies show there to be no significant difference in utilization rates, others show use to be lower among immigrants even when there is a need for it (Derr 2009; Laroche 2000; Sarría-Santamera et al. 2016; Whitley et al. 2017). Growing amount of literature is focusing on mental health service use among immigrants. Given that the migration process can be stressful, and the fact that some immigrants may face traumatic and life-changing experiences prior to and after migration, it is no surprise that immigrants are at high risk for mental health problems (Cervantes, Gattamorta, and Berger-Cardoso 2019; Frounfelker et al. 2019; George et al. 2015). The research, however, is not clear on the prevalence of mental health problems in immigrant populations. While some studies report high post-traumatic stress disorder, depression, and anxiety rates among immigrants (Ahmad et al. 2016), others report that mental health status is better among immigrants than non-immigrants (Durbin et al. 2015b; Menezes, Georgiades, and Boyle 2011; Stafford, Newbold, and Ross 2011). This can be because of several reasons such as under-reporting of mental health conditions among immigrants, stigma existing among certain ethnic communities to report mental health status or access care, existence of different cultural interpretations of mental health and/or lack of familiarity with specialized mental health services (Rosenberg et al. 2020; Thornicroft and Tansella 2004; Wang et al. 2007; Ng and Zhang 2021). On the other hand, there are reports of high resiliency among immigrant populations as well (Gatt et al. 2020). Also, support systems are very important to immigrant populations in both developing mental illnesses and obtaining care. A systematic review of literature on mental health service use in immigrants in the US has shown that immigrants often turn to informal help from family, friends, and religious leaders, before obtaining more "professional" help (Derr 2009).

Existing system-level policies also create barriers. For instance, since only the cost of physicians and hospital services are fully covered in the provincial health care plans, there is inequitable use

among Canadians for other health care services (Martin et al. 2018). Prescription drugs (purchased outside of hospitals), dental care, vision care, some rehabilitation services, home care, and long-term care accommodation do not fall entirely under the provincial plans (Lanoix 2017). Many individuals must pay for these services fully or partially out-of-pocket. The financial burden of these services can be very detrimental to immigrants who cannot afford to pay the cost out-of-pocket (Locker, Maggirias, and Quiñonez 2011; Ridde et al. 2020). These services have been reported to be less frequently used by immigrants than native-born, as many belong to low income quantiles and/or are unemployed or under-employed and do not have any form of insurance to help pay for the costs (Martin et al. 2018).

In terms of seniors care, a recent study has shown that immigrants who are 65 years or older makeup 4.4% of nursing homes, while 13.9% of Ontarians in that age group are immigrants (Jeong et al. 2020). The low level of nursing home and home care use among immigrant seniors could be for several reasons, including high level of informal help available to immigrant seniors, low number of ethno-specific homes in Ontario resulting in long waiting times, and differences in preferences (Quach et al. 2021; Um and Lightman 2017; Um 2021; Um and Lightman 2016). Jeong et al. (2020) show that compared to long-term immigrants and Canadian-born members, immigrants in nursing homes who have been in Canada for 30 years or less have greater cognitive decline (Jeong et al. 2020). This may be because immigrants are only entering nursing care when there is a high need for it. Quach et al. (2021), using administrative mortality data, find that being a recent immigrant is associated with a greater likelihood of acute inpatient care use (relative risk: 1.21, 95% confidence interval: 1.18-1.24) and lower likelihood of long-term care use (relative risk: 0.66, 95% confidence interval: 0.63-0.70), after adjusting for covariates (Quach et al. 2021).

1.2 Chapters overview

Chapter 2 explored the moderating influence of neighbourhood immigrant concentration on the associations between immigrant status and elevated mental health problems and mental health services use. In other words, the study investigated whether immigrant children and youth were more or less likely to have elevated mental health problems or use mental health services when the concentration of immigrants in their neighbourhood increased. This research question stemmed from the person-environment fit concept which proposes that the match (or mismatch) between characteristics of a person and characteristics of their environment influences their individual-level outcomes (Eccles et al. 1993; Magnusson and Stattin 1998). The concept suggests that immigrants on average have better outcomes in areas with high immigrant concentration than immigrants who live in areas with low immigrant concentration.

The influence of immigrant concentration on mental health and mental health service use was important to study because mental health services use has shown to be lower among immigrants (Barwick et al. 2013; Gandhi et al. 2016a; Rosenberg et al. 2020; Saunders, Gill, et al. 2018; Saunders, Lebenbaum, et al. 2018), despite the high rates of mental health illnesses in certain groups of immigrants such as refugees (Beiser et al. 2014; Cervantes, Gattamorta, and Berger-Cardoso 2019; George et al. 2015; Pottie et al. 2015). Given that immigrants are highly influenced by their social networks, it was worth investigating whether higher immigrant neighbourhood density influenced mental health and service use. Notably, the literature on the effect of ethnic and migrant density on mental health disorders has been mixed (Alegría, Molina, and Chen 2014;

Georgiades, Boyle, and Duku 2007; Menezes, Georgiades, and Boyle 2011). Living in areas with high immigrant concentration had been reported to be protective against the development of mental health conditions by providing individuals with positive experiences, a sense of belonging, and a buffer during stressful events (Cohen and Wills 1985; Puyat 2013). However, if there was a correlation between high immigrant concentration and low socioeconomic status of the neighbourhood, living in immigrant dense neighbourhoods was also associated with poor mental health as a result of increased stress from unsafe conditions or access to low-quality resources (Cutrona, Wallace, and Wesner 2006).

To my knowledge, no studies have investigated the influence of immigration concentration on mental health service use of immigrants in the Canadian context. Similar to mental health problems, studies investigating network effects on mental health services use have shown two pathways. On one path, knowledge spill-over and support available within a migrant/ethnic network leads to increased health services use and on the second, stigmatization of illness within a network leads to decreased health services use (Bailey, Blackmon, and Stevens 2009; Masuda, Anderson, and Edmonds 2012; Maulik, Eaton, and Bradshaw 2009; Pickett and Wilkinson 2008; Shim et al. 2009). This study used cross-sectional data from the 2014 Ontario Child Health Study, which is a large comprehensive epidemiological research survey that examined the physical and mental health of children and youth residing in Ontario (Boyle, Georgiades, Duncan, Comeau, et al. 2019).

Chapter 3 focused on the impact of cardiovascular and cerebrovascular health shocks on economic outcomes in various immigrant groups in Canada. Stroke is known as the leading cause of adult disability in Canada and an estimated 35,000 cardiac arrests occur each year (Krueger & Associates Inc. 2015; Heart and Stroke Foundation n.d.). Survivors of these health events can experience lifelong decreases in income from challenges faced in employment and decreased quality of life (Mensah et al. 2017). Income of family members of survivors may also be affected because family members have to either increase their hours in order to compensate for reduced income from the survivor or decrease their hours to provide caregiving (Jeon et al. 2020; Nascimento et al. 2021). Moreover, the impact of the shock may also be influenced by the financial support that is available from the government (Bradley, Neumark, and Barkowski 2013; García-Gómez 2011; Lundborg, NilssonMartin, and Vikstrom 2015). Both theoretically and empirically, the overall effects of a cardiovascular or cerebrovascular health shock on income variables is unclear.

Moreover, the size of the impacts of cardiovascular or cerebrovascular health shocks on income variables are reported to differ depending on individual-level characteristics. For example, women, individuals with lower baseline earnings, and individuals of older age have previously shown to be more sensitive to an income loss after a health shock (García-Gómez et al. 2013; Garland et al. 2019a). The impact of health shocks on immigrant populations is largely unknown, however. The difference between immigrant groups may be due to differences in employment and economic status, underlying differences in culture, attitudes towards risk, existing inequitable economic and health care barriers experienced by some immigrant groups, and the fact that some ethnicities have a greater cardiovascular risk than others (Islam and Parasnis 2017; Tu et al. 2015).

This study, building on Garland et al. (2019), studied various long-term income effects of cardiovascular and cerebrovascular events in a large sample of immigrants, and explored whether the effects were heterogeneous by conducting stratified analysis by sex, immigration categories, duration in Canada, and source region. The outcome variables studied included 1) before tax employment income, 2) government income, 3) total income, and 4) household income. Understanding the impact of health shocks on individual and household income is crucial to shaping return-to-work policies as well as rehabilitation guidelines. For this study, a linked panel dataset (IMDB-DAD) was utilized that combined immigration data from immigrant landing files, tax data from T1 files, and hospitalization data from the Discharge Abstract Database (DAD) for the years 2005 to 2015. I conducted double robust estimation that combined propensity score matching with difference-in-differences analysis.

Chapter 4 focused on home care and long-term care preferences among immigrant and non-immigrant older adults in Ontario. As the population ages and becomes sicker with complex conditions, the demand for both home care and long-term care is predicted to increase. Individuals with moderate care needs who are able to both live at home with home care services or move into a long-term care home will need to choose between these care settings. At the same time, individuals will have to choose a setting while making trade-offs between different care characteristics given their financial and social constraints.

In this study, I used discrete choice experiment methods to elicit people's preferences between home care and long-term care, as well as their valuation of certain characteristics of care settings: (1) room type (2) hours of care (3) culturally adapted care (4) wait time (5) regular care providers (6) distance to family and friends and (7) monthly cost. The study occurred in four iterative stages: 1) a rapid review of the literature to identify key attributes of home-care and long-term care settings and assess previous experimental designs; 2) key informant interviews with relevant stakeholders to continue to identify and discuss the attributes and understand the study and policy context in greater depth; 3) a pilot survey to test the survey instrument; and 4) an online survey. Discrete choice experiments can produce data on a topic for which administrative survey data is incomplete, as is the case for home-care and long-term care in Ontario (Janssen et al. 2017; Lagarde and Blaauw 2009; Lancaster 1966; Louviere, Hensher, and Swait 2000). Also, understanding the current demand for both home care and long-term care reform, this study went further and predicted the probability of choosing home care over long-term care, and vice versa, when home care and long-term care homes were designed to be at their best or worst.

Furthermore, with a growing diverse population in Ontario, and research showing unmet needs for home care and long-term care among vulnerable populations including immigrants, this study not only presented preferences of the general population, but also explored heterogeneity in preferences by immigrant status and sex (Qureshi et al. 2021; Um and Lightman 2017; Um and Lightman 2016). Previous research has shown that immigrants and ethnic communities face many challenges in accessing and using services including low-income, barriers in transportation or communication, lack of knowledge, cultural beliefs that oppose mainstream care, stigma, and social isolation (Gupta and Vijayan 2020; Kaida and Boyd 2011; Lai and Surood 2010; Patterson, Kyu, and Georgiades 2013; Ross, Mueller, and Sweetman 2016; Wang, Guruge, and Montana 2019). Also, many immigrants have shown preference for informal care over institutionalized care

(Gupta and Vijayan 2020). Understanding this, the attributes of culturally adapted care and distance to family and friends were specifically added to the survey.

Furthermore, the study vignette used in the survey focused on dementia, aligning with evidence which showed a high prevalence of dementia in the community as well as in long-term care homes. In Canada, the number of individuals living with dementia was 564,000 in 2016 and it was projected that the number would double every 15 to 20 years (Aryal et al. 2021; Wong, Gilmour, and Ramage-Morin 2016). With respect to immigrants, The National Health and Aging Trends Study found that older immigrants had 70% greater odds of having dementia and 119% greater odds of having undiagnosed dementia compared to US-born residents (Franco and Choi 2020). There are several factors that are associated with worse cognition among immigrants and challenges immigrants with dementia face in accessing and using services, one of which is language (Kovaleva et al. 2021). Bilingual seniors who are living with dementia may resort back to their mother tongue making it difficult to interact with health care staff who only speak English (Laher 2017).

Understanding older adults' preferences for care settings and characteristics will help to understand what future clients value in order to ultimately design person-centred care systems. This study is timely not only because of the growing aging population, but it aligns with current policy areas. In September 2022, a new legislation was implemented that now allows hospitals to transfer patients awaiting a bed in their preferred long-term care home to any "temporary home" (Legislative Assembly of Ontario 2022). Early critics suggest this will take people's preferences away (Balintic 2022). Also, Ontario is currently changing how it organizes, funds, and delivers health care (Ontario Ministry of Health n.d.). There is interest to move senior care to the community in order to reduce high hospital costs, improve quality of care, and align with the "aging in place" phenomenon (Rogers, Ramadhani, and Harris 2020). At the same time, more funding is being allocated to improve the number and quality of long-term care homes. As these systems undergo change, it becomes important to include public and future clients' preferences into policymaking to contribute to its successes.

1.3 References

Abelson, Julia et al. 2018. "Uncertain Times: A Survey of Canadian Women's Perspectives toward Mammography Screening." *Preventive Medicine* 112(April): 209–15. https://doi.org/10.1016/j.ypmed.2018.04.021.

Ahmad, Farah et al. 2016. "Burden of Common Mental Disorders in a Community Health Centre Sample." *Canadian Family Physician* 62(12): e758–66.

Akiva, Moshe Ben, Daniel McFadden, and Kenneth Train. 2019. "Foundations of Stated Preference Elicitation: Consumer Behavior and Choice Based Conjoint Analysis." *Foundations and Trends in Econometrics* 10(1–2): 1–144.

Akresh, Ilana Redstone. 2006. "Occupational Mobility among Legal Immigrants to the United States." *International Migration Review* 40(4): 854–84.

Alam, Khurshid, and Ajay Mahal. 2014. "Economic Impacts of Health Shocks on Households in Low and Middle Income Countries: A Review of the Literature." *Globalization and Health* 10(1).

Alegría, Margarita, Kristine M. Molina, and Chih Nan Chen. 2014. "Neighborhood Characteristics

and Differential Risk for Depressive and Anxiety Disorders across Racial/Ethnic Groups in the United States." *Depression and Anxiety* 31(1): 27–37.

Alexandre, Pierre Kébreau et al. 2008. "Predictors of Outpatient Mental Health Service Use by American Youth." *Psychological Services* 5(3): 251–61.

Althubaiti, Alaa. 2016. "Information Bias in Health Research: Definition, Pitfalls, and Adjustment Methods." *Journal of Multidisciplinary Healthcare* 9: 211–17.

American Psychiatric Association. 2013. "Diagnostic and Statistical Manual of Mental Disorders." https://psychiatryonline.org/doi/book/10.1176/appi.books.9780890425596 (June 14, 2022).

Anderson, Bridget, and Scott Blinder. 2019. "Who Counts as a Migrant? Definitions and Their Consequences." *The Migration Observatory*. https://migrationobservatory.ox.ac.uk/resources/briefings/who-counts-as-a-migrant-definitions-and-their-consequences/ (August 27, 2022).

Anderson, J G. 1973. "Health Services Utilization: Framework and Review." *Health services research* 8(3): 184–99. http://www.ncbi.nlm.nih.gov/pubmed/4593850%0Ahttp://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=PMC1071757.

Arango, Celso et al. 2021. "Risk and Protective Factors for Mental Disorders beyond Genetics: An Evidence-Based Atlas." *World Psychiatry* 20(3): 417–36.

Arya, Akshaya Neil, and Thomas Piggott. 2018. *Under-Served: Health Determinants of Indigineous, Inner-City, and Migrnt Populations in Canada*. ed. Canadian Scholars. Toronto.

Aryal, Komal et al. 2021. "Nursing Home Resident Admission Characteristics and Potentially Preventable Emergency Department Transfers." *Journal of the American Medical Directors Association*. https://doi.org/10.1016/j.jamda.2021.11.020.

Axelrad, Hila, Erika L. Sabbath, and Summer Sherburne Hawkins. 2018. "The 2008–2009 Great Recession and Employment Outcomes among Older Workers." *European Journal of Ageing* 15(1): 35–45.

Baek, Kelly et al. 2021. "Factors Influencing Formal and Informal Resource Utilization for Mental Distress Among Korean Americans in Southern California." *Journal of Immigrant and Minority Health* 23(3): 528–35. https://doi.org/10.1007/s10903-020-01050-1.

Bailey, Rahn Kennedy, Holly L. Blackmon, and Francis L. Stevens. 2009. "Major Depressive Disorder in the African American Population: Meeting the Challenges of Stigma, Misdiagnosis, and Treatment Disparities." *Journal of the National Medical Association* 101(11): 1084–89.

Balintic, Vanessa. 2022. "Advocates, Critics Warn Ontario's Planned Changes to Long-Term Care Are a Violation of Patient Rights." *CBC News*.

Barnes, Steve. 2016. *Health Care Access for the Uninsured in Ontario Symposium Report*. https://www.wellesleyinstitute.com/wp-content/uploads/2017/01/Health-Care-Access-for-the-Uninsured-Symposium-Report.pdf.

Baroud, Evelyne et al. 2019. "Suicidality among Lebanese Adolescents: Prevalence, Predictors and Service Utilization." *Psychiatry Research* 275(March 2019): 338–44. https://doi.org/10.1016/j.psychres.2019.03.033.

Barwick, Melanie et al. 2013. "Profiles and Service Utilization for Children Accessing a Mental Health Walk-In Clinic versus Usual Care." *Journal of Evidence-Based Social Work* 10(4):

338–52.
Bauer, Greta R. et al. 2021. “Intersectionality in Quantitative Research: A Systematic Review of Its Emergence and Applications of Theory and Methods.” *SSM - Population Health* 14(April): 100798. https://doi.org/10.1016/j.ssmph.2021.100798.
Beiser, Morton. 2005. “The Health of Immigrants and Refugees in Canada.” *Canadian Journal of Public Health* 96(SUPPL. 2).
———. 2010. “Predictors of Emotional Problems and Physical Aggression among Children of Hong Kong Chinese, Mainland Chinese and Filipino Immigrants to Canada.” *Social Psychiatry and Psychiatric Epidemiology* 45(10): 1011–21.
———. 2011. “Regional Effects on the Mental Health of Immigrant Children: Results from the New Canadian Children and Youth Study (NCCYS).” *Health and Place* 17(3): 822–29. http://dx.doi.org/10.1016/j.healthplace.2011.03.005.
———. 2014. “Predictors of Immigrant Children’s Mental Health in Canada: Selection, Settlement Contingencies, Culture, or All of the Above?” *Social Psychiatry and Psychiatric Epidemiology* 49(5): 743–56.
Beiser, Morton, and Feng Hou. 2016. “Mental Health Effects of Premigration Trauma and Postmigration Discrimination on Refugee Youth in Canada.” *Journal of Nervous and Mental Disease* 204(6): 464–70.
Beiser, Morton, Feng Hou, Ilene Hyman, and Michel Tousignant. 2002. “Poverty, Family Process, and the Mental Health of Immigrant Children in Canada.” *American Journal of Public Health* 92(2): 220–27.
de Bekker-Grob, Esther W. et al. 2019. “Are Healthcare Choices Predictable? The Impact of Discrete Choice Experiment Designs and Models.” *Value in Health* 22(9).
de Bekker-Grob, Esther W., Bas Donkers, Marcel F. Jonker, and Elly A. Stolk. 2015. “Sample Size Requirements for Discrete-Choice Experiments in Healthcare: A Practical Guide.” *Patient* 8(5): 373–84.
Belhadj Kouider, Esmahan, Ute Koglin, and Franz Petermann. 2015. “Emotional and Behavioral Problems in Migrant Children and Adolescents in American Countries: A Systematic Review.” *Journal of Immigrant and Minority Health* 17(4): 1240–58. http://dx.doi.org/10.1007/s10903-014-0039-2.
Blakely, Tony et al. 2021. “Disease-Related Income and Economic Productivity Loss in New Zealand: A Longitudinal Analysis of Linked Individual-Level Data.” *PLoS Medicine* 18(11): 1–19. http://dx.doi.org/10.1371/journal.pmed.1003848.
Bonsang, Eric. 2009. “Does Informal Care from Children to Their Elderly Parents Substitute for Formal Care in Europe?” *Journal of Health Economics* 28(1): 143–54.
Botly, Leigh C.P. et al. 2020. “Recent Trends in Hospitalizations for Cardiovascular Disease, Stroke, and Vascular Cognitive Impairment in Canada.” *Canadian Journal of Cardiology* 36(7): 1081–90. https://doi.org/10.1016/j.cjca.2020.03.007.
Boulanger, J. M. et al. 2018. “Canadian Stroke Best Practice Recommendations for Acute Stroke Management: Prehospital, Emergency Department, and Acute Inpatient Stroke Care, 6th Edition, Update 2018.” *International Journal of Stroke* 13(9): 949–84.
Boyer, Martin et al. 2017. *Long-Term Care Insurance: Knowledge Barriers, Risk Perception and Adverse Selection*. Montreal.
Boyle, Michael H., Katholiki Georgiades, Laura Duncan, Li Wang, et al. 2019. “Poverty,

Neighbourhood Antisocial Behaviour, and Children's Mental Health Problems: Findings from the 2014 Ontario Child Health Study." *Canadian Journal of Psychiatry* 64(4): 285–93.

Boyle, Michael H., Katholiki Georgiades, Laura Duncan, Jinette Comeau, et al. 2019. "The 2014 Ontario Child Health Study—Methodology." *Canadian Journal of Psychiatry* 64(4): 237–45.

Boyle, Michael H., Laura Duncan, et al. 2019. "The 2014 Ontario Child Health Study Emotional Behavioural Scales (OCHS-EBS) Part II: Psychometric Adequacy for Categorical Measurement of Selected DSM-5 Disorders." *Canadian Journal of Psychiatry* 64(6): 434–42.

Bradley, Cathy J., David Neumark, and Scott Barkowski. 2013. "Does Employer-Provided Health Insurance Constrain Labor Supply Adjustments to Health Shocks? New Evidence on Women Diagnosed with Breast Cancer." *Journal of Health Economics* 32(5): 833–49. http://dx.doi.org/10.1016/j.jhealeco.2013.06.008.

Bradley, Cathy J., David Neumark, Heather L. Bednarek, and Maryjean Schenk. 2005. "Short-Term Effects of Breast Cancer on Labor Market Attachment: Results from a Longitudinal Study." *Journal of Health Economics* 24(1): 137–60.

Bradley, Elizabeth H. et al. 2004. "Intended Use of Informal Long-Term Care: The Role of Race and Ethnicity." *Ethnicity and Health* 9(1): 37–54.

Brau, R, and LR Bruni. 2008. "Eliciting the Demand for Long-Term Care Coverage: A Discrete Choice Modelling Analysis." *Health Economics* 1131(2007): 1127–31.

Bridges, John F.P. et al. 2011. "Conjoint Analysis Applications in Health - A Checklist: A Report of the ISPOR Good Research Practices for Conjoint Analysis Task Force." *Value in Health* 14(4): 403–13. http://dx.doi.org/10.1016/j.jval.2010.11.013.

Brown, Kevin A. et al. 2021. "Association between Nursing Home Crowding and COVID-19 Infection and Mortality in Ontario, Canada." *JAMA Internal Medicine* 181(2): 229–36.

Brynaert Brennan et Associé.e.s. 2014. *Report on Service and Housing Needs of Francophone Seniors*. Erie St. Clair/South West.

Bueckert, Kate. 2021. "More Beds Coming as System Tackles 5-Year Wait Lists for Long-Term Care."

Campaign Research. 2020. *Home Care Ontario Study*.

Canada, Public Health Agency of. 2022. "COVID-19 Epidemiology Update."

Canada, Statistics. 2021. "Census Profile, 2021 Census of Population Profile Table." https://www12.statcan.gc.ca/census-recensement/2021/dp-pd/prof/details/page.cfm?Lang=E&SearchText=Ontario&DGUIDlist=2021A000235&GENDERlist=1,2,3&STATISTIClist=1&HEADERlist=0 (August 12, 2022).

Canadian Institute for Health Information. 2021. *The Impact of COVID-19 on Long-Term Care in Canada: Focus on the First 6 Months*. http://www.scie-socialcareonline.org.uk/the-impact-of-covid-19-on-long-term-care-in-canada-focus-on-the-first-6-months/r/a116f00000UuXxWAAV.

Capatina, Elena, Michael P. Keane, and Shiko Maruyama. 2018. "Health Shocks and the Evolution of Consumption and Income over the Life-Cycle." *SSRN Electronic Journal*.

Casey, Liam. 2021. "Ontario Home Care Sector Reports Mass Exodus of Healthcare Workers Moving to Hospitals, Long-Term Care Homes." *The Canadian Press*.

———. "'A Crisis for Home Care': Droves of Workers Leave for Hospitals, Nursing Homes." https://www.cbc.ca/news/canada/toronto/ont-home-care-1.6232042 (August 12, 2022).

Castañeda, Heide et al. 2015. "Immigration as a Social Determinant of Health." *Annual Review of Public Health* 36: 375–92.

Cervantes, Richard C., Karina A. Gattamorta, and Jodi Berger-Cardoso. 2019. "Examining Difference in Immigration Stress, Acculturation Stress and Mental Health Outcomes in Six Hispanic/Latino Nativity and Regional Groups." *Journal of Immigrant and Minority Health* 21(1): 14–20. http://dx.doi.org/10.1007/s10903-018-0714-9.

Chadwick, Kathryn A., and Patricia A. Collins. 2015. "Examining the Relationship between Social Support Availability, Urban Center Size, and Self-Perceived Mental Health of Recent Immigrants to Canada: A Mixed-Methods Analysis." *Social Science and Medicine* 128: 220–30. http://dx.doi.org/10.1016/j.socscimed.2015.01.036.

Chang, Cindy D. 2019. "Social Determinants of Health and Health Disparities Among Immigrants and Their Children." *Current Problems in Pediatric and Adolescent Health Care* 49(1): 23–30. https://doi.org/10.1016/j.cppeds.2018.11.009.

Charles, Kerwin Kofi. 1999. "Sickness in the Family: Health Shocks and Spousal Labor Supply."

Chen, Alice W., Arminée Kazanjian, and Hubert Wong. 2009. "Why Do Chinese Canadians Not Consult Mental Health Services: HealtH Status, Language or Culture?" *Transcultural Psychiatry* 46(4): 623–41.

Chester, Helen et al. 2018. "People with Dementia and Carer Preferences for Home Support Services in Early-Stage Dementia." *Aging and Mental Health* 22(2): 270–79. https://doi.org/10.1080/13607863.2016.1247424.

Chiswick, Barry R., Yew Liang Lee, and Paul W. Miller. 2008. "Immigrant Selection Systems and Immigrant Health." *Contemporary Economic Policy* 26(4): 555–78.

Chiu, Maria, Abigail Amartey, Xuesong Wang, and Paul Kurdyak. 2018. "Ethnic Differences in Mental Health Status and Service Utilization: A Population-Based Study in Ontario, Canada." *Canadian Journal of Psychiatry* 63(7): 481–91.

Choi, Sung. 2017. "Hospital Capital Investment during the Great Recession." *Inquiry (United States)* 54.

Choi, Sung W., Christal Ramos, Kyungha Kim, and Shahinshah Faisal Azim. 2019. "The Association of Racial and Ethnic Social Networks with Mental Health Service Utilization Across Minority Groups in the USA." *Journal of Racial and Ethnic Health Disparities* 6(4): 836–50.

Chow, Julian Chun Chung, Kim Jaffee, and Lonnie Snowden. 2003. "Racial/Ethnic Disparities in the Use of Mental Health Services in Poverty Areas." *American Journal of Public Health* 93(5): 792–97.

Chu, Leung Wing et al. 2014. "Community End-of-Life Care among Chinese Older Adults Living in Nursing Homes." *Geriatrics and Gerontology International* 14(2): 273–84.

Closing the Gap Healthcare Group Inc. 2020. "Home Care Costs in Ontario—A Complete Breakdown." https://www.closingthegap.ca/home-care-costs-in-ontario-a-complete-breakdown/.

Cloutier, Denise S. et al. 2019. "Long-Term Care Service Trajectories and Their Predictors for Persons Living With Dementia: Results From a Canadian Study." *Journal of Aging and Health* 31(1): 139–64.

Cohen, Sheldon, and Thomas Ashby Wills. 1985. "Stress, Social Support, and the Buffering Hypothesis." *Psychological Bulletin* 98(2): 310–57.

Colizzi, Marco, Antonio Lasalvia, and Mirella Ruggeri. 2020. "Prevention and Early Intervention in Youth Mental Health: Is It Time for a Multidisciplinary and Trans-Diagnostic Model for Care?" *International Journal of Mental Health Systems* 14(1): 1–14. https://doi.org/10.1186/s13033-020-00356-9.

Constant, Amelie F., Teresa García-Muñoz, Shoshana Neuman, and Tzahi Neuman. 2018. "A 'Healthy Immigrant Effect' or a 'Sick Immigrant Effect'? Selection and Policies Matter." *European Journal of Health Economics* 19(1): 103–21.

Copeland, William E., Lilly Shanahan, E. Jane Costello, and Adrian Angold. 2009. "Childhood and Adolescent Psychiatric Disorders as Predictors of Young Adult Disorders." *Archives of General Psychiatry* 66(7): 764–72.

Cost, Katherine Tombeau et al. 2022. "Mostly Worse, Occasionally Better: Impact of COVID-19 Pandemic on the Mental Health of Canadian Children and Adolescents." *European Child and Adolescent Psychiatry* 31(4): 671–84. https://doi.org/10.1007/s00787-021-01744-3.

Crossman, Eden, Feng Hou, and Garnett Picot. 2021. "Are the Gaps in Labour Market Outcomes between Immigrants and Their Canadian-Born Counterparts Starting to Close ?" *Statistics Canada* (36).

Currie, J, and BC Madrian. 1999. "Health, Health Insurance and the Labor Market." In *Handbook of Labor Economics*, eds. O Ashenfelter and D Card. Amsterdam, 3309–3407.

Cutrona, Carolyn E., Gail Wallace, and Kristin A. Wesner. 2006. "Neighborhood Characteristics and Depression an Examination of Stress Processes." *Current Directions in Psychological Science* 15(4): 188–92.

Dano, Anne Moller. 2005. "Road Injuries and Long-Run Effects on Income and Employment." *Health Economics* 14(9): 955–70.

Danso, Kofi. 2016. "Nativity and Health Disparities: Predictors of Immigrant Health." *Social Work in Public Health* 31(3): 175–87.

Das-Munshi, Jayati et al. 2019. "Ethnic Density and Other Neighbourhood Associations for Mortality in Severe Mental Illness: A Retrospective Cohort Study with Multi-Level Analysis from an Urbanised and Ethnically Diverse Location in the UK." *The Lancet Psychiatry* 6(6): 506–17.

David Naylor, C., Andrew Boozary, and Owen Adams. 2020. "Canadian Federal-Provincial/Territorial Funding of Universal Health Care: Fraught History, Uncertain Future." *Cmaj* 192(45): E1408–12.

Delavande, Adeline, and Charles F Manski. 2015. "Using Elicited Choice Probabilities in Hypothetical Elections to Study Decisions to Vote." *Elect Stud*: 28–37.

Derose, Kathryn Pitkin, José J. Escarce, and Nicole Lurie. 2007. "Immigrants and Health Care: Sources of Vulnerability." *Health Affairs* 26(5): 1258–68.

Derr, Amelia S. 2009. "Mental Health Service Use Among Immigrants in the United States: A Systematic Review Dr." 6(2): 356–72.

Dhanaraj, Sowmya. 2016. "Economic Vulnerability to Health Shocks and Coping Strategies: Evidence from Andhra Pradesh, India." *Health Policy and Planning* 31(6): 749–58.

Disney, Lindsey. 2021. "The Impact of Employment on Immigrant Mental Health: Results from a National Survey." *Social work* 66(2): 93–100.

Dixon, Simon et al. 2015. "Assessing Patient Preferences for the Delivery of Different Community-Based Models of Care Using a Discrete Choice Experiment." *Health*

Expectations.
Duncan, Laura et al. 2019. "The 2014 Ontario Child Health Study Emotional Behavioural Scales (OCHS-EBS) Part I: A Checklist for Dimensional Measurement of Selected DSM-5 Disorders." *Canadian Journal of Psychiatry* 64(6): 423–33.
Durbin, Anna et al. 2015a. "Examining the Relationship between Neighbourhood Deprivation and Mental Health Service Use of Immigrants in Ontario, Canada: A Cross-Sectional Study." *BMJ Open* 5(3).
———. 2015b. "Mental Health Service Use by Recent Immigrants from Different World Regions and by Non-Immigrants in Ontario, Canada: A Cross-Sectional Study." *BMC Health Services Research* 15(1). http://dx.doi.org/10.1186/s12913-015-0995-9.
Eccles, Jacquelynne S et al. 1993. "Development during Adolescence: The Impact of Stage-Environment Fit on Young Adolescents' Experiences in Schools and in Families." *American Psychologist* 48(2): 90–101.
Edwards, Ryan D., and Jennifer Roff. 2010. "Negative Effects of Paternal Age on Children's Neurocognitive Outcomes Can Be Explained by Maternal Education and Number of Siblings." *PLoS ONE* 5(9): 1–9.
Emerson, Scott D. et al. 2022. "Neighbourhood Context and Diagnosed Mental Health Conditions among Immigrant and Non-Immigrant Youth: A Population-Based Cohort Study in British Columbia, Canada." *Social Psychiatry and Psychiatric Epidemiology* (0123456789). https://doi.org/10.1007/s00127-022-02301-2.
Essue, BM et al. 2017. "Economic Burden of Chronic Ill Health and Injuries for Households in Low- and Middle-Income Countries." In *Disease Control Priorities: Improving Health and Reducing Poverty*, eds. DT Jamison et al. Washington.
Fadlon, Itzik, and Torben Heien Nielsen. 2021. "Family Labor Supply Responses to Severe Health Shocks: Evidence from Danish Administrative Records†." *American Economic Journal: Applied Economics* 13(3): 1–30.
Fan, Jonathan K. et al. 2018. "Labor Market and Health Trajectories during Periods of Economic Recession and Expansion in the United States, 1988–2011." *Scandinavian Journal of Work, Environment and Health* 44(6): 639–46.
Filion, Nicole, Andrew Fenelon, and Michel Boudreaux. 2018. "Immigration, Citizenship, and the Mental Health of Adolescents." *PLoS ONE* 13(5): 1–12.
Finkelstein, Eric A., Marcel Bilger, Terry N. Flynn, and Chetna Malhotra. 2015. "Preferences for End-of-Life Care among Community-Dwelling Older Adults and Patients with Advanced Cancer: A Discrete Choice Experiment." *Health Policy* 119(11): 1482–89. http://dx.doi.org/10.1016/j.healthpol.2015.09.001.
Fisher, Michael P., and Mika K. Hamer. 2020. "Qualitative Methods in Health Policy and Systems Research: A Framework for Study Planning." *Qualitative Health Research* 30(12): 1899–1912.
Fletcher, Jason, and Katie M Jajtner. 2021. "Intergenerational Health Mobility: Magnitudes and Importance of Schools and Place." *Health Economics* 30(7): 1648–67.
Forder, Julien, Katerina Gousia, and Eirini Christina Saloniki. 2019. "The Impact of Long-Term Care on Primary Care Doctor Consultations for People over 75 Years." *European Journal of Health Economics* 20(3): 375–87. http://dx.doi.org/10.1007/s10198-018-0999-6.
Franco, Yujin, and Eun Young Choi. 2020. "The Relationship Between Immigrant Status and

Undiagnosed Dementia: The Role of Limited English Proficiency." *Journal of Immigrant and Minority Health* 22(5): 914–22. https://doi.org/10.1007/s10903-019-00963-w.

Frounfelker, Rochelle L et al. 2019. "Mental Health of Refugee Children and Youth: Epidemiology, Interventions, and Future Directions." : 1–18.

Fu, Rong et al. 2019. "How Do Cardiovascular Diseases Harm Labor Force Participation? Evidence of Nationally Representative Survey Data from Japan, a Super-Aged Society." *PLoS ONE* 14(7): 1–16.

Gagnon, Monica, Nisha Kansal, Ritika Goel, and Denise Gastaldo. 2021. "Immigration Status as the Foundational Determinant of Health for People Without Status in Canada: A Scoping Review." *Journal of Immigrant and Minority Health* (0123456789). https://doi.org/10.1007/s10903-021-01273-w.

Gandhi, Sima et al. 2016a. "Mental Health Service Use among Children and Youth in Ontario: Population-Based Trends over Time." *Canadian Journal of Psychiatry* 61(2): 119–24.

———. 2016b. "Mental Health Service Use among Children and Youth in Ontario: Population-Based Trends over Time." *Canadian Journal of Psychiatry* 61(2): 119–24.

Garasia, Sophiya et al. "Health Outcomes, Health Services Utilization, and Costs Consequences of Medicare Uninsurance among Migrants in Canada: A Systematic Review." *Submitted to Health Services Research*.

García-Gómez, Pilar. 2011. "Institutions, Health Shocks and Labour Market Outcomes across Europe." *Journal of Health Economics* 30(1): 200–213.

García-Gómez, Pilar, Hans van Kippersluis, Owen O'Donnell, and Eddy van Doorslaer. 2013. "Long-Term and Spillover Effects of Health Shocks on Employment and Income." *Journal of Human Resources* 48(4): 873–909.

Garland, Allan et al. 2019a. "Effects of Cardiovascular and Cerebrovascular Health Events on Work and Earnings: A Population-Based Retrospective Cohort Study." *Annals of Internal Medicine* 191(1): E3–10.

———. 2019b. "Effects of Cardiovascular and Cerebrovascular Health Events on Work and Earnings: A Population-Based Retrospective Cohort Study." *Annals of Internal Medicine* 191(1): E3–10.

Gatt, Justine M. et al. 2020. "Trauma, Resilience, and Mental Health in Migrant and Non-Migrant Youth: An International Cross-Sectional Study Across Six Countries." *Frontiers in Psychiatry* 10(March): 1–15.

Gentili, Elena, Giuliano Masiero, and Fabrizio Mazzonna. 2017. "The Role of Culture in Long-Term Care Arrangement Decisions." *Journal of Economic Behavior and Organization* 143: 186–200. https://doi.org/10.1016/j.jebo.2017.09.007.

George, M. A., and C. Bassani. 2016a. "The Health of Immigrant Children Who Live in Areas with High Immigrant Concentration." *Ethnicity and Health* 21(5): 426–38. http://dx.doi.org/10.1080/13557858.2015.1066762.

———. 2016b. "The Health of Immigrant Children Who Live in Areas with High Immigrant Concentration." *Ethnicity and Health* 21(5): 426–38. http://dx.doi.org/10.1080/13557858.2015.1066762.

George, Usha, Mary S. Thomson, Ferzana Chaze, and Sepali Guruge. 2015. "Immigrant Mental Health, a Public Health Issue: Looking Back and Moving Forward." *International Journal of Environmental Research and Public Health* 12(10): 13624–48.

Georgiades, Katholiki et al. 2019. “Six-Month Prevalence of Mental Disorders and Service Contacts among Children and Youth in Ontario: Evidence from the 2014 Ontario Child Health Study.” *Canadian Journal of Psychiatry* 64(4): 246–55.

Georgiades, Katholiki, Michael H. Boyle, and Eric Duku. 2007. “Contextual Influences on Children’s Mental Health and School Performance: The Moderating Effects of Family Immigrant Status.” *Child Development* 78(5): 1572–91.

Georgiades, Katholiki, Michael H. Boyle, and Kelly A. Fife. 2013. “Emotional and Behavioral Problems Among Adolescent Students: The Role of Immigrant, Racial/Ethnic Congruence and Belongingness in Schools.” *Journal of Youth and Adolescence* 42(9): 1473–92.

Gibbard, Robyn. 2017. “Sizing up the Challenge: Meeting the Demand for Long-Term Care in Canada.” *The Conference Board of Canada* (November): 1–48. https://www.cma.ca/sites/default/files/2018-11/9228_Meeting the Demand for Long-Term Care Beds_RPT.pdf.

Government of Canada. 2014. “Government of Canada — Action for Seniors Report.” https://www.canada.ca/en/employment-social-development/programs/seniors-action-report.html (August 12, 2022).

———. 2019. “Rural and Northern Immigration Pilot: About the Pilot - Canada.Ca.” https://www.canada.ca/en/immigration-refugees-citizenship/services/immigrate-canada/rural-northern-immigration-pilot.html (January 15, 2020).

———. 2022a. “Atlantic Immigration Program.” https://www.canada.ca/en/immigration-refugees-citizenship/services/immigrate-canada/atlantic-immigration.html (August 27, 2022).

———. 2022b. “Interim Federal Health Program: What Is Covered.” https://www.canada.ca/en/immigration-refugees-citizenship/services/refugees/help-within-canada/health-care/interim-federal-health-program/coverage-summary.html (September 28, 2022).

Government of Ontario. 2022. “Protecting People’s Health.” https://budget.ontario.ca/2021/health.html (August 12, 2022).

Grignon, Michel, and Byron G. Spencer. 2018. “The Funding of Long-Term Care in Canada: What Do We Know, What Should We Know.” *Canadian Journal on Aging* 37(2): 110–20.

Guan, Alice et al. 2020. “Neighborhood Ethnic Composition and Self-Rated Health Among Chinese and Vietnamese American Immigrants.” *Journal of Immigrant and Minority Health* (0123456789). https://doi.org/10.1007/s10903-020-01041-2.

Gupta, R, and K Vijayan. 2020. “Analysis of Caregiver Burden in South Asian Families in the Dallas-Fort Worth Metropolitan Area : Insights for Social Practice Author (s): Rashmi Gupta and Vijayan K . Pillai Source : Journal of Applied Sociology , Vol . 22 , No . 2 , Special Joint Issu.” 22(2): 35–54.

Gustafsson-Wright, Emily, Wendy Janssens, and Jacques Van Der Gaag. 2011. “The Inequitable Impact of Health Shocks on the Uninsured in Namibia.” *Health Policy and Planning* 26(2): 142–56.

H. Krueger & Associates Inc. 2015. *Estimated Prevalence of Stroke Survivors with Disability in Canada*. https://www.canadianstroke.ca/sites/default/files/resources/Stroke-Prevalence-Report-2015-02-25.pdf.

Haan, Peter, and Michal Myck. 2009. “Dynamics of Health and Labor Market Risks.” *Journal of*

Health Economics 28(6): 1116–25.
Halla, Martin, and Martina Zweimüller. 2013. "The Effect of Health on Earnings: Quasi-Experimental Evidence from Commuting Accidents." *Labour Economics* 24: 23–38.
Halsall, Tanya et al. 2019. "Trends in Mental Health System Transformation: Integrating Youth Services within the Canadian Context." *Healthcare Management Forum* 32(2): 51–55.
Hansen, Marissa C., Dahlia Fuentes, and Maria P. Aranda. 2018. "Re-Engagement into Care: The Role of Social Support on Service Use for Recurrent Episodes of Mental Health Distress Among Primary Care Patients." *Journal of Behavioral Health Services and Research* 45(1): 90–104.
Hansson, Emily K., Andrew Tuck, Steve Lurie, and Kwame McKenzie. 2012. "Rates of Mental Illness and Suicidality in Immigrant, Refugee, Ethnocultural, and Racialized Groups in Canada: A Review of the Literature." *Canadian Journal of Psychiatry* 57(2): 111–21.
Health Quality Ontario. 2012. *Quality Improvement Plans in Long-Term Care: Lessons Learned*.
Heart and Stroke Foundation. "Saving Lives | Heart and Stroke Foundation." https://www.heartandstroke.ca/what-we-do/our-impact/saving-lives (June 7, 2022).
Heinesen, Eskil, Susumu Imai, and Shiko Maruyama. 2018. "Employment, Job Skills and Occupational Mobility of Cancer Survivors." *Journal of Health Economics* 58: 151–75. https://doi.org/10.1016/j.jhealeco.2018.01.006.
Henry, Hani M. et al. 2009. "Immigrants' Continuing Bonds with Their Native Culture: AssimilatioN Analysis of Three Interviews." *Transcultural Psychiatry* 46(2): 257–84.
Hensher, David A, John M. Rose, and William H. Greene. 2005. *Applied Choice Analysis A Primer*. Cambridge: Cambridge University Press.
Home Care Ontario. "Home Care & Me | Home Care Ontario." https://www.homecareontario.ca/home-care-services/overview (February 1, 2020).
Houle, René, and Hélène Maheux. 2016. "150 Years of Immigration in Canada." *Statistics Canada*. https://www150.statcan.gc.ca/n1/pub/11-630-x/11-630-x2016006-eng.htm.
Howard, George et al. 1985. "Factors Influencing Return to Work Following Cerebral Infarction." *JAMA: The Journal of the American Medical Association* 253(2): 226–32.
Hurlburt, Michael S. et al. 2004. "Contextual Predictors of Mental Health Service Use among Children Open to Child Welfare." *Archives of General Psychiatry* 61(12): 1217–24.
Hutchison, Brian, Jean-frédéric Levesque, Erin Strumpf, and Natalie Coyle. 2015. "Primary Health Care in Canada : Systems in Motion Source : The Milbank Quarterly , Vol . 89 , No . 2 (June 2011), Pp . 256-288 Published by : Wiley on Behalf of Milbank Memorial Fund Stable URL : Http://Www.Jstor.Org/Stable/23036216 Your Use of the JSTO." 89(2): 256–88.
Imbens, Guido W. 2015. "Matching Methods in Practice: Three Examples." *Journal of Human Resources* 50(2): 373–419.
IOM UN Migration. 2020. *World Migration Report 2020*. Geneva.
Islam, A, and J Parasnis. 2017. "Heterogeneous Effects of Health Shocks in Developed Countries: Evidence from Australia." *Monash University Department of Economics*.
Islam, Farah. 2015. "Immigrating to Canada during Early Childhood Associated with Increased Risk for Mood Disorders." *Community Mental Health Journal* 51(6): 723–32. http://dx.doi.org/10.1007/s10597-015-9851-y.
Janssen, Ellen M., Deborah A. Marshall, A. Brett Hauber, and John F.P. Bridges. 2017. "Improving the Quality of Discrete-Choice Experiments in Health: How Can We Assess

Validity and Reliability?" *Expert Review of Pharmacoeconomics and Outcomes Research*.
Jeon, Sung Hee et al. 2020. "Effects of Cardiovascular Health Shocks on Spouses' Work and Earnings: A National Study." *Medical Care* 58(2): 128–36.
Jeong, Ahwon et al. 2020. "Health Outcomes of Immigrants in Nursing Homes: A Population-Based Retrospective Cohort Study in Ontario, Canada." *Journal of the American Medical Directors Association* 21(6): 740-746.e5. https://doi.org/10.1016/j.jamda.2020.03.001.
Johnson, F. Reed et al. 2013. "Constructing Experimental Designs for Discrete-Choice Experiments: Report of the ISPOR Conjoint Analysis Experimental Design Good Research Practices Task Force." *Value in Health* 16(1): 3–13.
Johnson, R, and B Orme. 2003. "Getting the Most from CBC." *Sequim: Sawtooth Software Research Paper Series*.
Johnson, Reed et al. 2013. "Constructing Experimental Designs for Discrete-Choice Experiments: Report of the ISPOR Conjoint Analysis Experimental Design Good Research Practices Task Force." *Value in Health*.
Johnson, Shanthi et al. 2018. "No Place Like Home: A Systematic Review of Home Care for Older Adults in Canada." *Canadian Journal on Aging* 37(4): 400–419.
Jones, Aaron et al. 2021. "Impact of the COVID-19 Pandemic on Home Care Services Among Community-Dwelling Adults With Dementia." *Journal of the American Medical Directors Association* 22(11): 2258-2262.e1. https://doi.org/10.1016/j.jamda.2021.08.031.
Jones, Andrew M., Nigel Rice, and Francesca Zantomio. 2020. "Acute Health Shocks and Labour Market Outcomes: Evidence from the Post Crash Era." *Economics and Human Biology* 36(2020): 100811. https://doi.org/10.1016/j.ehb.2019.100811.
Kaambwa, Billingsley et al. 2015. "Investigating Consumers' and Informal Carers' Views and Preferences for Consumer Directed Care: A Discrete Choice Experiment." *Social Science and Medicine* 140: 81–94. http://dx.doi.org/10.1016/j.socscimed.2015.06.034.
Kaida, Lisa, and Monica Boyd. 2011. "Poverty Variations among the Elderly: The Roles of Income Security Policies and Family Co-Residence." *Canadian Journal on Aging* 30(1): 83–100.
Kampanellou, Eleni, Helen Chester, Linda Davies, Sue Davies, Clarissa Giebel, Jane Hughes, David Challis, Paul Clarkson, et al. 2019. "Carer Preferences for Home Support Services in Later Stage Dementia." *Aging & mental health* 23(1): 60–68. http://ovidsp.ovid.com/ovidweb.cgi?T=JS&PAGE=reference&D=prem&NEWS=N&AN=29090948.
———. 2019. "Carer Preferences for Home Support Services in Later Stage Dementia." *Aging and Mental Health* 23(1): 60–68. https://doi.org/10.1080/13607863.2017.1394441.
Ketchen, Sandra. 2021. "Ontario Seniors and Patients Will Pay the Price of the Developing Home-Care Crisis." *Toronto News*.
Kim, Daniel. 2008. "Blues from the Neighborhood? Neighborhood Characteristics and Depression." *Epidemiologic Reviews* 30(1): 101–17.
Kim, Sophia Bohun, and Yeonjung Jane Lee. 2021. "Factors Associated with Mental Health Help-Seeking Among Asian Americans: A Systematic Review." *Journal of Racial and Ethnic Health Disparities*.
Kimber, Melissa et al. 2015. "Adolescent Body Image Distortion: A Consideration of Immigrant Generational Status, Immigrant Concentration, Sex and Body Dissatisfaction." *Journal of Youth and Adolescence* 44(11): 2154–71.

Koehn, Sharon. 2009. "Negotiating Candidacy: Ethnic Minority Seniors' Access to Care." *Ageing and Society* 29(4): 585–608.

Kovaleva, Mariya, Abigail Jones, Cathy A. Maxwell, and Elizabeth M. Long. 2021. "Immigrants and Dementia: Literature Update." *Geriatric Nursing* 42(5): 1218–21. https://doi.org/10.1016/j.gerinurse.2021.04.019.

Kuluski, Kerry, A. Paul Williams, Whitney Berta, and Audrey Laporte. 2012. "Home Care or Long-Term Care? Setting the Balance of Care in Urban and Rural Northwestern Ontario, Canada." *Health and Social Care in the Community* 20(4): 438–48.

Kwak, Kyunghwa. 2016. "An Evaluation of the Healthy Immigrant Effect with Adolescents in Canada: Examinations of Gender and Length of Residence." *Social Science and Medicine* 157: 87–95. http://dx.doi.org/10.1016/j.socscimed.2016.03.017.

Lagarde, Mylene, and Duane Blaauw. 2009. "A Review of the Application and Contribution of Discrete Choice Experiments to Inform Human Resources Policy Interventions." *Human Resources for Health* 7: 1–10.

Laher, Nazeefah. 2017. "Diversity, Aging, and Intersectionality in Ontario Home Care." (May). www.wellesleyinstitute.com.

Lai, Daniel W.L., and Shireen Surood. 2010. "Types and Factor Structure of Barriers to Utilization of Health Services among Aging South Asians in Calgary, Canada." *Canadian Journal on Aging* 29(2): 249–58.

Lancaster, K. 1966. "A New Approach to Consumer Theory Author (s): Kelvin J . Lancaster Reviewed Work (s): Source : Journal of Political Economy , Vol . 74 , No . 2 (Apr ., 1966), Pp . 132-157 Published by : The University of Chicago Press Stable URL : Http://Www.Jstor." 74(2): 132–57.

Lancsar, Emily, Denzil G. Fiebig, and Arne Risa Hole. 2017. "Discrete Choice Experiments: A Guide to Model Specification, Estimation and Software." *PharmacoEconomics*.

Lanoix, Monique. 2017. "No Longer Home Alone? Home Care and the Canada Health Act." *Health Care Analysis* 25(2): 168–89.

Lapointe-Shaw, Lauren et al. 2021. "Homebound Status among Older Adult Home Care Recipients in Ontario, Canada." *Journal of the American Geriatrics Society* (March): 1–11.

Laroche, Mireille. 2000. "Health Status and Health Services Utilization of Canada's Immigrant and Non-Immigrant Populations." *Canadian Public Policy* 26(1): 51–75.

Legislative Assembly of Ontario. 2022. "Bill 7, More Beds, Better Care Act, 2022."

Lehnert, T. et al. 2018. "Preferences for Home- and Community-Based Long-Term Care Services in Germany: A Discrete Choice Experiment." *European Journal of Health Economics*.

Lehnert, T, M Heuchert, K Hussain, and HK Konig. 2018. "Stated Preferences for Long-Term Care: A Literature Review." *Ageing and Society*.

Lehnert, Thomas, Max Heuchert, Katharina Hussain, and Hans-Helmut König. 2019. "Stated Preferences for Long-Term Care: A Literature Review."

Lenhart, Otto. 2019. "The Effects of Health Shocks on Labor Market Outcomes: Evidence from UK Panel Data." *European Journal of Health Economics* 20(1): 83–98.

Lin, Elizabeth et al. 1996. "The Use of Mental Health Services in Ontario: Epidemiologic Findings." *Canadian Journal of Psychiatry* 41(9): 572–77.

Liu, Xing. 2016. *Applied Ordinal Logistic Regression Using Stata*. Thousand Oaks: Sage.

Locker, David, John Maggirias, and Carlos Quiñonez. 2011. "Income, Dental Insurance Coverage,

and Financial Barriers to Dental Care among Canadian Adults." *Journal of Public Health Dentistry* 71(4): 327–34.

Louviere, Jordan J, David A Hensher, and Joffre D Swait. 2000. *Stated Choice Methods Analysis and Application*. Cambridge: University Press.

Luce, Mary F, John W Payne, and James R Bettman. 1999. "Emotional Trade-off Difficulty and Choice." *Journal of Marketing Research* 36(2): 143–59.

Ludwig, Jens, Greg Duncan, Lawrence K Atz, and Lisa Sanbonmatsu. 2014. "Moving to More Affluent Neighborhoods." : 1–4. macfound.org/HousingMatters.

Lundborg, Petter, NilssonMartin, and Johan Vikstrom. 2015. "Heterogeneity in the Impact of Health Shocks on Labour Outcomes: Evidence from Swedish Workers." *Oxford Economic Papers* 67(3): 715–39.

Ma, Xin. 2002. "The First Ten Years in Canada: A Multi-Level Assessment of Behavioural and Emotional Problems of Immigrant Children." *Canadian Public Policy* 28(3): 395–418.

Mackenzie, Kwame, Branka Agic, Andrew Tuck, and Michael Antwi. 2016. *The Case for Diversity : Building the Case to Improve Mental Health Services for Immigrant, Refugee, Ethno-Cultural and Racialized Populations : Report to the Mental Health Commission of Canada*. https://www.mentalhealthcommission.ca/sites/default/files/2016-10/case_for_diversity_oct_2016_eng.pdf.

Magnusson, D, and H Stattin. 1998. "Person-Context Interaction Theories." In *Handbook of Child Psychology: Vol. 1. Theoretical Models of Human Development*, New York: Wiley, 685–759.

De Maio, Fernando G. 2010. "Immigration as Pathogenic: A Systematic Review of the Health of Immigrants to Canada." *International Journal for Equity in Health* 9(1): 27. http://www.equityhealthj.com/content/9/1/27.

Manski, Charles F. 2010. "Measuring Expectations." *Society* 28(5): 244–57.

Marchildon, Gregory, and Livio Di Matteo. 2011. "Health Care Cost Drivers : The Facts, Spending and Workforce." *Canadian Institute for Health Information* (October 2011): 1–33.

Markides, Kyriakos S., and Sunshine Rote. 2019. "The Healthy Immigrant Effect and Aging in the United States and Other Western Countries." *Gerontologist* 59(2): 205–14.

Marmot, MG, AM Adelstein, and L Bulusu. 1984. "Lessons from the Study of Immigrant Mor-Tality." *The Lancet* 1(8392): 1455–57.

Martin, Danielle et al. 2018. "Canada's Universal Health-Care System: Achieving Its Potential." *The Lancet* 391(10131): 1718–35.

Martinez, William, and Antonio J. Polo. 2018. "Neighborhood Context, Family Cultural Values, and Latinx Youth Externalizing Problems." *Journal of Youth and Adolescence* 47(11): 2440–52. http://dx.doi.org/10.1007/s10964-018-0914-6.

Masuda, Akihiko, Page L. Anderson, and Joshua Edmonds. 2012. "Help-Seeking Attitudes, Mental Health Stigma, and Self-Concealment Among African American College Students." *Journal of Black Studies* 43(7): 773–86.

Maulik, Pallab, William Eaton, and Catherine Bradshaw. 2009. "The Role of Social Network and Support in Mental Health Service Use: Findings From the Baltimore ECA Study." *Psychiatric Services* 60(9).

McKenzie, Kwame. 2019. "Improving Mental Health Services for Immigrant, Racialized, Ethno-Cultural and Refugee Groups." *Healthcare Papers* 18(2): 4–9.

McLeod Macey, Jennifer, and Grace Tong. 2017. "Children and Youth Mental Health Survey: Getting Help in Ontario." : 1–23. https://www.ipsos.com/en-ca/news-polls/CMHO-children-and-youth-mental-health-ontario.

Mehmetoglu, Mehmet, and Tor Georg Jakobsen. 2002. "Multilevel Analysis." In *Applied Statistics Using Stata - A Guide for the Social Sciences*, London: SAGE Publications Ltd (E-mail: info@sagepub.co.uk), 195–224.

Mendicino, Marco E.L. 2020. *2020 Annual Report to Parliament on Immigration*. Ottawa, ON.

Menezes, N. M., K. Georgiades, and M. H. Boyle. 2011. "The Influence of Immigrant Status and Concentration on Psychiatric Disorder in Canada: A Multi-Level Analysis." *Psychological Medicine* 41(10): 2221–31. https://www.cambridge.org/core/product/identifier/S0033291711000213/type/journal_article (January 15, 2020).

Mensah, George A. et al. 2017. "Decline in Cardiovascular Mortality: Possible Causes and Implications." *Circulation Research* 120(2): 366–80.

Mentzakis, Emmanouil, Manuel García-Goñi, Ana Rita Sequeira, and Francesco Paolucci. 2019. "Equity and Efficiency Priorities within the Spanish Health System: A Discrete Choice Experiment Eliciting Stakeholders Preferences." *Health Policy and Technology* 8(1): 30–41. https://doi.org/10.1016/j.hlpt.2019.01.003.

Min, Jong W., and Concepcion Barrio. 2009. "Cultural Values and Caregiver Preference for Mexican-American and Non-Latino White Elders." *Journal of Cross-Cultural Gerontology* 24(3): 225–39.

Ministry of Health and Long-Term Care. 2019. "Become an Ontario Health Team - Health Care Professionals - MOHLTC." http://health.gov.on.ca/en/pro/programs/connectedcare/oht/default.aspx LB - UQzQ (December 3, 2020).

Mittmann, Nicole et al. 2012. "Impact of Disability Status on Ischemic Stroke Costs in Canada in the First Year." *Can J Neurol Sci* 39(6): 793–800.

Morassaei, Sara et al. 2022. "The Role of Immigrant Admission Classes on the Health and Well-Being of Immigrants and Refugees in Canada: A Scoping Review." *Journal of Immigrant and Minority Health* (0123456789). https://doi.org/10.1007/s10903-022-01352-6.

Morgan M. Rogers-Carter1 2, Juan A Varela1 2 Katherine B Gribbons1 Anne F Pierce1 Morgan T McGoey1 Maureen Ritchey1, and John P Christianson1. 2017. "Health Impacts of the Great Recession: A Critical Review." *Physiology & behavior* 176(12): 139–48.

Moullan, Yasser, and Florence Jusot. 2014. "Why Is the 'healthy Immigrant Effect' Different between European Countries?" *European Journal of Public Health* 24(SUPPL.1): 80–86.

Mueller, Richard E, and N T Khuong Truong. 2022. "Wage and Basic Skills Inequality between Immigrants by Immigration Admission Categories and Canadian Non-Immigrants." *Empirical Economics* 62(4): 1833–84. http://libaccess.mcmaster.ca/login?url=https://search.ebscohost.com/login.aspx?direct=true&db=eoh&AN=1956049&site=ehost-live&scope=site.

Munroe-Blum, Heather, Michael H. Boyle, David R. Offord, and Nicholas Kates. 1989. "IMMIGRANT CHILDREN: Psychiatric Disorder, School Performance, and Service Utilization." *American Journal of Orthopsychiatry* 59(4): 510–19.

Nascimento, Lucas R. et al. 2021. "Predictors of Return to Work after Stroke: A Prospective,

Observational Cohort Study with 6 Months Follow-Up." *Disability and Rehabilitation* 43(4): 525–29.

Netten, A. et al. 2012. "Outcomes of Social Care for Adults: Developing a Preference-Weighted Measure." *Health Technology Assessment* 16(16): 1–165.

Ng, Edward. 2020. "COVID-19 Deaths among Immigrants: Evidence from the Early Months of the Pandemic." *Statistics Canada* (45280001): 1–9.

Ng, Edward, Kevin Pottie, and Denise Spitzer. 2011. "Official Language Proficiency and Selfreported Health among Immigrants to Canada." *Health Reports* 22(4).

Nieboer, Anna P., Xander Koolman, and Elly A. Stolk. 2010. "Preferences for Long-Term Care Services: Willingness to Pay Estimates Derived from a Discrete Choice Experiment." *Social Science and Medicine*.

O'Neill, Braden et al. 2022. "Socioeconomic and Immigration Status and COVID-19 Testing in Toronto, Ontario: Retrospective Cross-Sectional Study." *BMC Public Health* 22(1): 1–9. https://doi.org/10.1186/s12889-022-13388-2.

Ohle, Robert, Helena Bleeker, Krishan Yadav, and Jeffrey J. Perry. 2018. "The Immigrant Effect: Factors Impacting Use of Primary and Emergency Department Care - A Canadian Population Cross-Sectional Study." *Canadian Journal of Emergency Medicine* 20(2): 260–65.

Ojeda, Victoria D, Richard G Frank, Thomas G McGuire, and Todd P Gilmer. 2010. "Mental Illness, Nativity, Gender, and Labor Supply." 19: 396–421.

Okrainec, Karen, Chaim M. Bell, Simon Hollands, and Gillian L. Booth. 2015. "Risk of Cardiovascular Events and Mortality among a Population-Based Cohort of Immigrants and Long-Term Residents with Diabetes: Are All Immigrants Healthier and If so, for How Long?" *American Heart Journal* 170(1): 123–32. http://dx.doi.org/10.1016/j.ahj.2015.04.009.

Oldenburger, David et al. 2022. "COVID - 19 Issues in Long-Term Care in Ontario : A Document Analysis Enjeux Liés à La COVID-19 Dans Les Soins de Longue Durée En Ontario : Une Analyse de Documents." 17: 53–65.

Ontario's Regulatory Registry. 2022. *Fixing Long-Term Care Act, 2021*. Toronto, Canada. https://www.ontario.ca/laws/statute/21f39.

Ontario, Home Care. 2020. "New Poll Shows Over 90% of Ontario Seniors Want to Live at Home as They Age, and Want Government to Invest to Help Them Do It." https://www.newswire.ca/news-releases/new-poll-shows-over-90-of-ontario-seniors-want-to-live-at-home-as-they-age-and-want-government-to-invest-to-help-them-do-it-857341964.html.

———. 2021. "97 Per Cent of Ontario Seniors Want Increased Home Care Funding: Poll." https://www.newswire.ca/news-releases/97-per-cent-of-ontario-seniors-want-increased-home-care-funding-poll-805034645.html (March 3, 2022).

Ontario Long-term Care Association. 2021. "The Role of Long-Term Care." https://www.oltca.com/oltca/OLTCA/Public/LongTermCare/FactsFigures.aspx (August 12, 2022).

Ontario Long Term Care Association. 2019. "Facts and Figures." https://www.oltca.com/oltca/OLTCA/Public/LongTermCare/FactsFigures.aspx (December 3, 2020).

Ontario Ministry of Finance. 2019. "Ontario Population Projections, 2018-2046." : 2018–46.

Ontario Ministry of Health. 2021. “Ontario Welcomes New Long-Term Care Development Proposals.” https://news.ontario.ca/en/release/1001009/ontario-welcomes-new-long-term-care-development-proposals.

———. 2022. “Long-Term Care Accommodation Costs and Subsidy.”

———. *Ontario Health Teams: Guidance for Health Care Providers and Organizations*.

Osler, Merete, Solvej Mårtensson, Eva Prescott, and Kathrine Carlsen. 2014. “Impact of Gender, Co-Morbidity and Social Factors on Labour Market Affiliation after First Admission for Acute Coronary Syndrome. A Cohort Study of Danish Patients 2001-2009.” *PLoS ONE* 9(1).

Patel, Asiya et al. 2019. “Double Burden of Rural Migration in Canada? Considering the Social Determinants of Health Related to Immigrant Settlement Outside the Cosmopolis.” *International Journal of Environmental Research and Public Health* 16(5).

Patterson, Beth, Hmwe Hmwe Kyu, and Katholiki Georgiades. 2013. “Age at Immigration to Canada and the Occurrence of Mood, Anxiety, and Substance Use Disorders.” *Canadian Journal of Psychiatry* 58(4): 210–17.

Pelley, Lauren. 2022. “Communities with Low Incomes, Immigrants, Essential Workers Hardest Hit by COVID-19: Study.” *CBC News*.

Phillips, Susan P., and Janelle Yu. 2021. “Is Anxiety/Depression Increasing among 5-25 Year-Olds? A Cross-Sectional Prevalence Study in Ontario, Canada, 1997-2017.” *Journal of Affective Disorders* 282(November 2020): 141–46. https://doi.org/10.1016/j.jad.2020.12.178.

Pickett, Kate E., and Richard G. Wilkinson. 2008. “People like Us: Ethnic Group Density Effects on Health.” *Ethnicity and Health* 13(4): 321–34.

Pignone, Michael P. et al. 2014. “Using a Discrete Choice Experiment to Inform the Design of Programs to Promote Colon Cancer Screening for Vulnerable Populations in North Carolina.” *BMC Health Services Research* 14(1): 1–9.

Pinchas-Mizrachi, Ronit, Yaakov Naparstek, Ronit Nirel, and Ehud Kukia. 2020. “The ‘Sick Immigrant’ and ‘Healthy Immigrant’ Phenomenon among Jews Migrating from the USSR to Israel.” *SSM - Population Health* 12: 100694. https://doi.org/10.1016/j.ssmph.2020.100694.

Pottie, Kevin et al. 2015. “Do First Generation Immigrant Adolescents Face Higher Rates of Bullying, Violence and Suicidal Behaviours Than Do Third Generation and Native Born?” *Journal of Immigrant and Minority Health* 17(5): 1557–66. http://dx.doi.org/10.1007/s10903-014-0108-6.

Puyat, Joseph H. 2013. “Is the Influence of Social Support on Mental Health the Same for Immigrants and Non-Immigrants?” *Journal of Immigrant and Minority Health* 15(3): 598–605.

Quach, Bradley I. et al. 2021. “Comparison of End-of-Life Care between Recent Immigrants and Long-Standing Residents in Ontario, Canada.” *JAMA Network Open* 4(11): 1–13.

Quaife, Matthew, Fern Terris-Prestholt, Gian Luca Di Tanna, and Peter Vickerman. 2018. “How Well Do Discrete Choice Experiments Predict Health Choices? A Systematic Review and Meta-Analysis of External Validity.” *European Journal of Health Economics* 19(8): 1053–66. https://doi.org/10.1007/s10198-018-0954-6.

Qureshi, Danial et al. 2021. “Describing Differences Among Recent Immigrants and Long-Standing Residents Waiting for Long-Term Care: A Population-Based Retrospective Cohort

Study." *Journal of the American Medical Directors Association* 22(3): 648–55. https://doi.org/10.1016/j.jamda.2020.07.018.

Racine, Nicole et al. 2021. "Global Prevalence of Depressive and Anxiety Symptoms in Children and Adolescents during COVID-19: A Meta-Analysis." *JAMA Pediatrics* 175(11): 1142–50.

Raudenbush, S.W., and A.S. Bryk. 2002. *Hierarchial Linear Models: Applications and Data Analysis Methods (2nd Ed.)*. Thousand Oaks: Sage.

Ridde, Valéry et al. 2020. "Unmet Healthcare Needs among Migrants without Medical Insurance in Montreal, Canada." *Global Public Health* 15(11): 1603–16.

Roberts, Tessa et al. 2018. "Factors Associated with Health Service Utilisation for Common Mental Disorders: A Systematic Review." *BMC Psychiatry* 18(1): 1–19.

Robinson, Stephanie M. et al. 2015. "Home, Please: A Conjoint Analysis of Patient Preferences after a Bad Hip Fracture." *Geriatrics and Gerontology International* 15(10): 1165–70.

Rogers, Wendy A., Widya A. Ramadhani, and Maurita T. Harris. 2020. "Defining Aging in Place: The Intersectionality of Space, Person, and Time." *Innovation in Aging* 4(4): 1–11.

Rosenberg, Julia et al. 2020. "Disparities in Mental and Behavioral Health Treatment for Children and Youth in Immigrant Families." *Academic Pediatrics* 20(8): 1148–56. https://doi.org/10.1016/j.acap.2020.06.013.

Ross, F, RE Mueller, and Arthur Sweetman. 2016. "The Cultural Determinants of Access to Post-Secondary (Higher) Education in Canada: Empirical Evidence and Policy Implications." In *Access and Expansion Post-Massification: Opportunities and Barriers to Further Growth in Higher Education Participation*, eds. BWA JongBloed and H Vossensteyn. New York: Routledge, 150–78.

Rousseau, Cécile, and Rochelle L. Frounfelker. 2019. "Mental Health Needs and Services for Migrants: An Overview for Primary Care Providers." *Journal of Travel Medicine* 26(2): 1–8.

Rousseau, Cécile, Ghayda Hassan, Toby Measham, and Myrna Lashley. 2008. "Prevalence and Correlates of Conduct Disorder and Problem Behavior in Caribbean and Filipino Immigrant Adolescents." *European Child and Adolescent Psychiatry* 17(5): 264–73.

Runnels, Vivian. 2017. *Understanding Immigrant Seniors' Needs and Priorities for Health Care*.

Salam, Zoha et al. 2022. "Systemic and Individual Factors That Shape Mental Health Service Usage Among Visible Minority Immigrants and Refugees in Canada: A Scoping Review." *Administration and Policy in Mental Health and Mental Health Services Research* (0123456789). https://doi.org/10.1007/s10488-021-01183-x.

Salloum, Ramzi G., Elizabeth A. Shenkman, Jordan J. Louviere, and David A. Chambers. 2017. "Application of Discrete Choice Experiments to Enhance Stakeholder Engagement as a Strategy for Advancing Implementation: A Systematic Review." *Implementation Science* 12(1): 1–12.

Samuelson-Kiraly, Claire et al. 2020. "Access and Quality of Health Care in Canada: Insights from 1998 to the Present." *Healthcare Management Forum* 33(6): 253–58.

Sandelowski, M. 2000. "Focus on Research Methods: Whatever Happened to Qualitative Description?" *Research in Nursing and Health* 23(4): 334–40.

Sarría-Santamera, Antonio, Ana Isabel Hijas-Gómez, Rocío Carmona, and Luís Andrés Gimeno-Feliú. 2016. "A Systematic Review of the Use of Health Services by Immigrants and Native Populations." *Public Health Reviews* 37(1). http://dx.doi.org/10.1186/s40985-016-0042-3.

Saunders, Natasha Ruth, Michael Lebenbaum, et al. 2018. "Trends in Mental Health Service

Utilisation in Immigrant Youth in Ontario, Canada, 1996-2012: A Population-Based Longitudinal Cohort Study." *BMJ open* 8(9).

Saunders, Natasha Ruth, Peter J. Gill, et al. 2018. "Use of the Emergency Department as a First Point of Contact for Mental Health Care by Immigrant Youth in Canada: A Population-Based Study." *Cmaj* 190(40): E1183–91.

Saunders, Natasha Ruth et al. 2022. "Changes in Hospital-Based Care Seeking for Acute Mental Health Concerns among Children and Adolescents during the COVID-19 Pandemic in Ontario, Canada, Through September 2021." *JAMA Network Open* 5(7): E2220553.

Savaş, Özge et al. 2021. "All Immigrants Are Not Alike : Intersectionality Matters in Views of Immigrant Groups Non-Technical Summary An Intersectional Perspective on Immigrant Groups."

Sawamura, Kanae, Hiroshi Sano, and Miharu Nakanishi. 2015. "Japanese Public Long-Term Care Insured: Preferences for Future Long-Term Care Facilities, Including Relocation, Waiting Times, and Individualized Care." *Journal of the American Medical Directors Association* 16(4): 350.e9-350.e20. http://dx.doi.org/10.1016/j.jamda.2015.01.082.

Sellström, Eva, and Sven Bremberg. 2006. "The Significance of Neighbourhood Context to Child and Adolescent Health and Well-Being: A Systematic Review of Multilevel Studies." *Scandinavian journal of public health* 34(5): 544–54. http://www.ncbi.nlm.nih.gov/pubmed/16990166 (January 14, 2020).

Sheehan, David V. et al. 2010. "Reliability and Validity of the Mini International Neuropsychiatric Interview for Children and Adolescents (MINI-KID)." *Journal of Clinical Psychiatry* 71(3): 313–26.

Shields, Margot et al. 2021. "Symptoms of Major Depressive Disorder during the Covid-19 Pandemic: Results from a Representative Sample of the Canadian Population." *Health Promotion and Chronic Disease Prevention in Canada* 41(11): 340–58.

Shim, R.S. et al. 2009. "Race-Ethnicity as a Predictor of Attitudes Toward Mental Health Treatment Seeking." *Psychiatr Serv.* 60(10): 1336–41. file:///C:/Users/Carla Carolina/Desktop/Artigos para acrescentar na qualificação/The impact of birth weight on cardiovascular disease risk in the.pdf.

Shortt, Janet. 2014. "A Historical Perspective of the Effect of the Great Recession on Hospitals." *AORN Journal* 100(2): 177–87.

Smith, James P. 1999. "Healthy Bodies and Thick Wallets: The Dual Relation between Health and Economic Status." *Journal of Economic Perspectives* 13(2): 145–66.

Sohail, Qazi Zain et al. 2015. "The Risk of Ischemic Heart Disease and Stroke Among Immigrant Populations: A Systematic Review." *Canadian Journal of Cardiology* 31(9): 1160–68. http://dx.doi.org/10.1016/j.cjca.2015.04.027.

Soril, Lesley JJ, Ted Adams, and Madeline Phipps-Taylor. 2014. "Is Canadian Healthcare Affordable ? A Comparative Analysis of the Canadian Healthcare System from 2004 to 2014 Les Soins de Santé Sont-Ils Abordables Au Canada ? Analyse Comparative Du Système de Santé Canadien de 2004 à 2014." *Healthcare Policy* 13(1): 43–58.

Spoont, Michele R. et al. 2014. "Impact of Treatment Beliefs and Social Network Encouragement on Initiation of Care by VA Service Users with PTSD." *Psychiatric Services* 65(5): 654–62.

Stafford, Mai, Bruce K. Newbold, and Nancy A. Ross. 2011. "Psychological Distress among

Immigrants and Visible Minorities in Canada: A Contextual Analysis." *International Journal of Social Psychiatry* 57(4): 428–41.

Statistics Canada. 2016. "2016 Census Topic: Age and Sex." https://www12.statcan.gc.ca/census-recensement/2016/rt-td/as-eng.cfm (February 1, 2020).

———. 2017a. "Census in Brief Children with an Immigrant Background: Bridging Cultures." (98): 1–8.

———. 2017b. "Illustrated Glossary - Census Tract (CT)." https://www150.statcan.gc.ca/n1/pub/92-195-x/2016001/geo/ct-sr/ct-sr-eng.htm (January 10, 2022).

———. 2018. "Immigration and Ethnocultural Diversity in Canada."

———. 2021. "Tax Filers and Dependants with Income by Total Income, Sex and Age." https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1110000801 (August 12, 2022).

Steele, Leah S, Carolyn S Dewa, and Elizabaeth Lin. 2007. "Education Level , Income Level and Mental Health Services Use in Canada : Associations and Policy Implications Niveau de Scolarité , Niveau de Revenu et Utilisation Répercussions Sur Les Associations et Les Politiques." *Health Care Policy* 3(1): 96–106.

Stepner, Michael. 2019. "The Insurance Value of Redistributive Taxes and Transfers."

Straus, Sharon E., Eric K.C. Wong, Trina Thorne, and Carole Estabrooks. 2021. "Recommendations from Long-Term Care Reports, Commissions, and Inquiries in Canada." *F1000Research* 10: 1–17.

Stronks, K., H. Van de Mheen, J. Van den Bos, and J. P. Mackenbach. 1997. "The Interrelationship between Income, Health and Employment Status." *International Journal of Epidemiology* 26(3): 592–600.

Sweetman, Arthur. 2017. "Canada's Immigration System: Lessons for Europe?" *Intereconomics* 52(5): 277–84.

Sweetman, Arthur, and Casey Warman. 2013a. "Canada's Immigration Selection System and Labour Market Outcomes." *Canadian Public Policy* 39(SUPPL.1).

———. 2013b. "Canada's Immigration Selection System and Labour Market Outcomes." *Canadian Public Policy* 39(SUPPL.1).

Tanaka, Atsuko. 2021. "The Effects of Sudden Health Reductions on Labor Market Outcomes: Evidence from Incidence of Stroke." *Health Economics (United Kingdom)* 30(6): 1480–97.

The Government of Canada. 2006. Minister of Public Works and Government Services Canada *The Human Face of Mental Health and Mental Illness in Canada 2006*. http://www.phac-aspc.gc.ca/publicat/human-humain06/index-eng.php.

The Standing Senate Committee on Social Affairs, Science and Technology. 2006. The Senate *Transforming Mental Health , Mental Illness and Addiction Services in Canada*.

Thornicroft, Graham, and Michele Tansella. 2004. "Components of a Modern Mental Health Service: A Pragmatic Balance of Community and Hospital Care. Overview of Systematic Evidence." *British Journal of Psychiatry* 185(OCT.): 283–90.

Torres, Sandra. 2009. "Vignette Methodology and Culture-Relevance: Lessons Learned through a Project on Successful Aging with Iranian Immigrants to Sweden." *Journal of Cross-Cultural Gerontology* 24(1): 93–114.

Trevisan, Elisabetta, and Francesca Zantomio. 2016. "The Impact of Acute Health Shocks on the

Labour Supply of Older Workers: Evidence from Sixteen European Countries." *Labour Economics* 43: 171–85. http://dx.doi.org/10.1016/j.labeco.2016.04.002.

Tricco, Andrea C. et al. 2015. "A Scoping Review of Rapid Review Methods." *BMC Medicine* 13(1). http://dx.doi.org/10.1186/s12916-015-0465-6.

Tu, Jack V. et al. 2015. "Incidence of Major Cardiovascular Events in Immigrants to Ontario, Canada: The CANHEART Immigrant Study." *Circulation* 132(16): 1549–59.

Um, Seong-gee. 2021. "Reforming Long-Term Care Requires a Diversity and Equity Approach." *Policy Options*. https://policyoptions.irpp.org/magazines/may-2021/reforming-long-term-care-requires-a-diversity-and-equity-approach/.

Um, Seong-gee, and Naomi Lightman. 2016. "Ensuring Healthy Aging for All Home Care Access for Diverse Senior." (July).

Um, Seong-Gee, and Naomi Lightman. 2017. "Seniors' Health in the GTA: How Immigration, Language, and Racialization Impact Seniors' Health." *Wellesley Institute* (May). www.wellesleyinstitute.com.

Vang, Zoua M., Jennifer Sigouin, Astrid Flenon, and Alain Gagnon. 2017. "Are Immigrants Healthier than Native-Born Canadians? A Systematic Review of the Healthy Immigrant Effect in Canada." *Ethnicity and Health* 22(3): 209–41. http://dx.doi.org/10.1080/13557858.2016.1246518.

Vayda, Eugene, and Raisa B Deber. 1984. "The Canadian Health Care System: An Overview." *Soc Sci Med* 18(3): 191–97.

Veldwijk, Jorien et al. 2014. "The Effect of Including an Opt-out Option in Discrete Choice Experiments." *PLoS ONE* 9(11).

Viruell-Fuentes, Edna A., Patricia Y. Miranda, and Sawsan Abdulrahim. 2012. "More than Culture: Structural Racism, Intersectionality Theory, and Immigrant Health." *Social Science and Medicine* 75(12): 2099–2106. http://dx.doi.org/10.1016/j.socscimed.2011.12.037.

Vogel, D.L. et al. 2007. "Seeking Help From a Mental Health Professional: The Influence of One's Social Network." *Journal of Clinical Psychology* 63(3): 233–45.

Vyas, Manav V. et al. 2017. "Lost Productivity in Stroke Survivors: An Econometrics Analysis." *Neuroepidemiology* 47(3–4): 164–70.

Vyas, Manav V., Claire De Oliveira, Audrey Laporte, and Moira K. Kapral. 2019. "The Association between Stroke, Integrated Stroke Systems, and the Employability and Productivity of Canadian Stroke Survivors." *Neuroepidemiology* 53(3–4): 209–19.

Waddell, Charlotte et al. 2019. "2014 Ontario Child Health Study Findings: Policy Implications for Canada." *Canadian Journal of Psychiatry* 64(4): 227–31.

Walsh, Sharon et al. 2019. "Public Preferences for Home Care Services for People with Dementia: A Discrete Choice Experiment on Personhood." *Social Science & Medicine*: 112675. https://doi.org/10.1016/j.socscimed.2019.112675.

Walter Rasugu Omariba, D., Nancy A. Ross, Claudia Sanmartin, and Jack T. Tu. 2014. "Neighbourhood Immigrant Concentration and Hospitalization: A Multilevel Analysis of Cardiovascular-Related Admissions in Ontario Using Linked Data." *Canadian Journal of Public Health* 105(6): e404–11.

Wang, Lu. 2011. "Analysing Spatial Accessibility to Health Care: A Case Study of Access by Different Immigrant Groups to Primary Care Physicians in Toronto." *Annals of GIS* 17(4): 237–51.

Wang, Lu, Sepali Guruge, and Gelsomina Montana. 2019. “Older Immigrants’ Access to Primary Health Care in Canada: A Scoping Review.” *Canadian Journal on Aging* 38(2): 193–209.

Wang, P et al. 2007. “Use of Mental Health Services for Anxiety, Mood, and Substance Disorders in 17 Countries in the WHO World Mental Health Surveys.” *Lancet* 370: 841–50.

White, Kellee, Jennifer S. Haas, and David R. Williams. 2012. “Elucidating the Role of Place in Health Care Disparities: The Example of Racial/Ethnic Residential Segregation.” *Health Services Research* 47(3 PART 2): 1278–99.

Whitley, Rob et al. 2017. “Mental Health Status, Health Care Utilisation, and Service Satisfaction among Immigrants in Montreal: An Epidemiological Comparison.” *Canadian Journal of Psychiatry* 62(8).

Wiens, K et al. 2020. “A Growing Need for Youth Mental Healthservices in Canada: Examining Trends Inyouth Mental Health from 2011 to 2018.” *Epidemiology and PsychiatricSciences* 29(e115): 1–9.

Wilkinson, Andrea et al. 2019. “Overall Quality Performance of Long-Term Care Homes in Ontario.” *Healthcare quarterly* 22(2).

Wolff, Jennifer L., Judith D. Kasper, and Andrew D. Shore. 2008. “Long-Term Care Preferences among Older Adults: A Moving Target?” *Journal of Aging and Social Policy* 20(2): 182–200.

Wong, Irene O.L., Benjamin J. Cowling, Su Vui Lo, and Gabriel M. Leung. 2009. “A Multilevel Analysis of the Effects of Neighbourhood Income Inequality on Individual Self-Rated Health in Hong Kong.” *Social Science and Medicine* 68(1): 124–32. http://dx.doi.org/10.1016/j.socscimed.2008.09.064.

Wong, Suzy L., Heather Gilmour, and Pamela L. Ramage-Morin. 2016. “Alzheimer’s Disease and Other Dementias in Canada.” *Health Reports* 27(5): 11–16.

Zaresani, Arezou. 2018. “Return-to-Work Policies and Labor Supply In.” *AEA Papers and Proceedings* 108: 272–76.

Zimmer, David M. 2015. “Employment Effects of Health Shocks: The Role of Fringe Benefits.” *Bulletin of Economic Research* 67(4): 346–58.

Zimmerman, Frederick J. 2005. “Social and Economic Determinants of Disparities in Professional Help-Seeking for Child Mental Health Problems: Evidence from a National Sample.” *Health Services Research* 40(5 I): 1514–33.

Zondervan-Zwijnenburg, Maria A.J. et al. 2020. “Parental Age and Offspring Childhood Mental Health: A Multi-Cohort, Population-Based Investigation.” *Child Development* 91(3): 964–82.

Chapter Two: Neighbourhood immigrant concentration, elevated mental health problems, and mental health service use in children and youth in Ontario: A multi-level analysis

2.0 Abstract

Background: Approximately 70% of mental health challenges have their onset in childhood and adolescence. Immigrant children and youth face unique challenges in accessing and utilizing mental health services while they are at high risk of experiencing mental health problems. Little is known about how neighbourhood immigrant concentration influences health and health care experiences of immigrants in Ontario. Identifying micro- and macro-level factors, such as immigrant concentration, that influence the prevalence of mental health disorders in children and youth and their use of mental health services can help to fill the research gaps and have implications on how policy and programs can be improved.

Methods: Using the concept of "person-environment fit" and multilevel modeling, I investigated whether a person-environment mismatch in immigrant status was associated with reporting elevated mental health problems and mental health service use, adjusting for various factors at individual, household, and neighbourhood levels. I used data from the 2014 Ontario Child Health Study, which is a large comprehensive epidemiological research survey that examined the physical and mental health of children and youth in Ontario, Canada.

Results: Unadjusted regression results showed that children and youth from immigrant households had lower odds of both having elevated mental health problems and reporting the use of mental health services, compared to children/youth from non-immigrant households. When investigating neighbourhood effects, analysis showed that non-immigrant children/youth had statistically significant lower odds of having elevated mental health problems as the neighbourhood immigration concentration increased and immigrant children/youth had significantly lower odds of using mental health services.

Conclusion: This study showed the importance of studying the interaction between a range of individual, family, and environmental factors associated with mental health and mental health service use in immigrants. Targeting neighbourhoods with average to high immigrant concentration may be important to lower burden of mental health problems in children and youth Ontario.

2.1 Introduction

Mental illnesses are characterized by changes in individuals' thinking, mood, or behaviour and are usually associated with significant distress or impaired functioning in social, occupational or other activities (American Psychiatric Association 2013). Examples of mental illnesses include bipolar disorder, anxiety disorder, major depressive disorder, and schizophrenia. It is estimated that approximately one in three Canadians will be affected by a mental illness during their lifetime. Approximately 70% of mental health challenges have their onset in childhood and adolescence (The Government of Canada 2006), while it is known that mental health status in childhood is a predictor of more severe mental health illnesses in adulthood (Copeland et al. 2009). Given that seeking treatment early is beneficial to improve population health, access to and design of childhood and youth mental health services need to be prioritized in Canada.

Over the last decade, there has been a transformation in mental health care in Ontario with an increase in public health and health service interventions targeting mental health in children and youth. Recent research shows that while mental health seeking behaviour has increased, the care system continues to be patchy and needs are still largely unmet (Colizzi, Lasalvia, and Ruggeri 2020; Waddell et al. 2019). Children and youth can obtain help for their mental health from general settings such as schools, primary care, and religious organizations, specialized mental health care contacts such as psychologists and psychiatrists, and acute care settings such as emergency departments, and phone help lines (The Standing Senate Committee on Social Affairs 2006). Care is provided through both public and private systems, creating a two-tier system. This can affect the quality of care that is offered as well as provide differential access to children and youth depending on their socioeconomic and demographic backgrounds. In 2016-2017, Canadians aged 19 and under had the lowest proportion of health services use for a mental illness (10.7%). However, there is an increasing trend in the use of health services for mental illness among adolescent Canadians. From 2000-2001 to 2016-2017, the proportion of Canadians aged 19 and under using these services rose an average of 2.6 percent per year. Concurrently, prevalence of poor mental health and diagnosed disorders also increased (Wiens et al. 2020). Little is known about mental health problems and service use patterns in immigrant households in Ontario, who are increasingly making up the health profile of the province. Identifying micro- and macro-level factors that influence the prevalence of mental health disorders in children and youth and the use of mental health services, using an immigrant health perspective, can help to fill the research gaps and have implications on how policy and programs can be improved.

2.1.1 Mental health in immigrants

The prevalence of poor mental health and mental disorders in the immigrant and refugee population is unclear due to a lack of relevant administrative data, awareness about mental health conditions and services, and reporting (Hansson et al. 2012). Moreover, the relationship between mental health problems and immigrant status is complicated. Both theoretical and empirical research on the socioeconomic determinants of mental health show that the risk differs between immigrants and non-immigrants as well as within immigrant groups but the direction of the effect is unclear and is context-driven (Hansson et al. 2012). Some individuals may have higher risk of developing mental health disorders because of exposure to trauma or a life-changing experience, family history, and exposure to not only general determinants of health such as low income or low

education, but also immigrant specific determinants such as language barriers, country of origin, and cultural or religious discrimination (Beiser et al. 2014; Cervantes, Gattamorta, and Berger-Cardoso 2019; George and Bassani 2016a; Pottie et al. 2015). On the other hand, others may have lower risk because of affiliations with a strong coping network or high resiliency level. Vulnerability may also differ across one's life course depending on social factors and life stresses. Refugees in particular are at a high risk because of traumas faced pre-migration (Frounfelker et al. 2019). Length of time living in Canada is also said to play an important role, as suggested by the "healthy immigrant effect". Immigrants who arrive to Canada are generally healthier than their native counterparts, but with duration in Canada, mental health difficulties grow (Filion, Fenelon, and Boudreaux 2018).

2.1.2 Mental health service use in immigrants

Despite the known detrimental effects of mental health challenges and high prevalence rates in youth and children, access to mental health services remains low among immigrant youth (Saunders, Lebenbaum, et al. 2018) and there is a reported lack of continuity of care (Rosenberg et al. 2020). Issues are also reported in the coordination among various groups providing mental health care. As a consequence, there is an underrepresentation of outpatient targeted mental health care and an over-representation of emergency departments as the first point-of-contact (Barwick et al. 2013; Gandhi et al. 2016b; Ohle et al. 2018; Saunders, Gill, et al. 2018; Saunders, Lebenbaum, et al. 2018). A study conducted by Saunders, Gill, et al. (2018) in Ontario, using administrative datasets, found that rates of first mental health contact in the emergency department of hospitals were higher among refugees (61%; attributable risk of 1.17 (95% CI: 1.13-1.21)) and non-refugee immigrant youth (58%; attributable risk of 1.17 (95% CI: 1.08-1.13)) than among non-immigrants (51%) (Saunders, Gill, et al. 2018). Use of the emergency department was also higher among recent immigrants compared to long-term immigrants and among immigrants from Central America and Africa compared to North America and Western Europe, highlighting differences across immigrant and refugee groups (Saunders, Gill, et al. 2018). According to Saunders, Gill, et al. (2018), use of emergency care as the first point of contact reflected under-recognition of disease before crisis, lack of access to timely diagnosis and treatment, stigma, poor access to primary care and cultural differences in expectations regarding the health system or disease (Saunders, Gill, et al. 2018). Notably, in Ontario, studies that utilize solely administrative data can be biased in reporting mental health contacts as they do not capture settings outside of physician-based care where mental health support may be received such as community-based organizations, schools, and phone help lines.

2.1.3 Contextual factors influencing mental health and mental health service use

Another piece of the puzzle in understanding mental health and mental health service use is the role of contextual factors. Studies that compare mental health conditions across places (i.e., neighbourhoods, regions, postal codes and school boundaries) have shown that ethnic and migrant density, income level, and social capital of places were associated with mental health (Beiser et al. 2011; Chow, Jaffee, and Snowden 2003; Cutrona, Wallace, and Wesner 2006; Ludwig et al. 2014; Wong et al. 2009). The direction and magnitude of these associations were however unclear. The concept of person-environment fit, a theoretical extension of the ecological systems concept, explains that the match (or mismatch) between characteristics of a person and characteristics of

their environment influence outcomes (Eccles et al. 1993; Magnusson and Stattin 1998). The underlying assumption behind the theory is that a match results in a positive outcome while the opposite occurs when there is a mismatch. Thus, the concept suggests that immigrants on average have better outcomes in areas with high immigrant concentration than immigrants who live in areas with low immigrant concentration.

The findings from studies that have investigated mental health determinants using the person-environment fit concept have been varied (Menezes, Georgiades, and Boyle 2011). Alegria, Molina, et al. (2014), using data from the United States (US), found Latinos residing in neighbourhoods with greater Latino and immigrant concentration were at increased risk of any past-year anxiety disorder (Alegría, Molina, and Chen 2014). Using Canadian data, Georgiades, Boyle, et al. (2007) found that among children from immigrant households, living in a neighbourhood with higher concentration of immigrants was associated with lower levels of emotional-behavioral problems while the reverse was true for children living in non-immigrant families (Georgiades, Boyle, and Duku 2007). Acting as a proxy for social support, living in areas with high immigrant concentration can be theorized as being protective against the development of mental health conditions by providing individuals with positive experiences, a sense of belonging, and a buffer during stressful events (Cohen and Wills 1985; Puyat 2013). On the other hand, if there is a correlation between high immigrant concentration and low socioeconomic status of the neighbourhood, living in immigrant dense neighbourhoods may be associated with poor mental health as a result of increased stress from unsafe conditions or access to low-quality resources (Cutrona, Wallace, and Wesner 2006). Therefore, it is important to adjust for factors that may influence the association between immigrant variables and mental health outcomes.

Fewer studies have focused on the association between concordance in immigrant status and immigrant concentration and mental health services use (Chow, Jaffee, and Snowden 2003). Durbin, Moeneddin, et al. (2015) studied the interaction between neighbourhood deprivation and immigrant status on mental health services use in Ontario, Canada. They found that while for both immigrants and long-term residents, residence in more deprived quintiles was associated with greater use of mental health services, the size of the association was smaller for recent immigrants compared to long-term residents (Durbin et al. 2015a). They, however, did not adjust for mental health need. It is also important to note that the limited literature on the association between ethnic and/or migrant density and mental health services use has displayed mixed findings. Studies investigating social network effects have shown two pathways. First, knowledge spillover and support available within a migrant/ethnic network was associated with increased health services use and, second, having a network where there was stigmatization of disorders or access to supports that acted as substitutes to treatment (e.g., seeing a spiritual leader) was associated with decreased health services use (Bailey, Blackmon, and Stevens 2009; Choi et al. 2019; Hansen, Fuentes, and Aranda 2018; Masuda, Anderson, and Edmonds 2012; Maulik, Eaton, and Bradshaw 2009; Pickett and Wilkinson 2008; Shim et al. 2009; Spoont et al. 2014; Vogel et al. 2007). Studying the interaction between individuals and their environment is important considering that immigrant children and youth are highly influenced by their context (Georgiades, Boyle, and Fife 2013; Patterson, Kyu, and Georgiades 2013; Sellström and Bremberg 2006). One study reported that amongst non-immigrant children, personal characteristics (e.g., sex and age) were more important than city characteristics in affecting behavioural and emotional problems, but the opposite was found for immigrant children (Ma 2002).

In addition, very few studies investigated both mental health service use and mental health in the same population and/or adjusted for mental health need when studying mental health service use. Anderson's Behavioral Model of Health Services Use suggests that the use of health services is a function of an individual's predisposition to use services (such as socioeconomic status and other personal demographics), resources available that enable or impede use (such as the number of health care professionals in area), and need for care (such as self-reported or diagnosed health status) (Anderson 1973). Consequently, it is important to study whether mental health problems are influenced by the interaction of immigrant status and neighbourhood immigrant concentration, and whether that same relationship also exists for mental health service use (Choi et al. 2019). If the person-environment concept is to be true, then immigrant children and youth living in highly concentrated neighbourhoods would have better mental health outcomes and use services more when there is a need for them. Moreover, when studying the influence of immigrant density on the association between immigrant status and mental health service use, it is critical to adjust for mental health need knowing that the prevalence of mental health disorders in immigrant populations is lower than in non-immigrant populations. Otherwise, mental health service use in immigrants may be a function of lower need and not disparities in access or use of mental health services.

At the same time, understanding the theory of intersectionality (explains how layers of identity influence health and health care use) and knowing that risk factors for elevated mental health problems and use of mental health services differ by health and social contexts, it is also important to not only adjust for contextual factors but also study whether these associations hold across different stratified analyses (Bauer et al. 2021). For instance, Hansson, Tuck, et al. (2012) in their review found that when immigrants were considered as a whole, suicide rates were low, but the rate of suicidal ideation and attempts in refugees was observed to be high in particular when stratified analysis was conducted (Hansson et al. 2012). Likewise, Puyat (2013) showed that among recent immigrants, the negative effects of having low social support on mental health were strongest, whereas the positive effect of having high social support on mental health was stronger among long-term immigrants (Puyat 2013). Puyat (2013) suggested that recent immigrants faced higher amounts of stress because of their socioeconomically disadvantaged position relative to the general population, which became worse with a small-to-no support system. Consequently, it is important to study whether the influence of immigrant concentration on the association between household immigrant status and mental health differs within subgroups.

2.1.4 Study objectives

The objectives of this study were multifold. First, I aimed to study the influence of immigrant status (household level) and immigrant concentration (neighbourhood level) independently on mental health and mental health service use of children and youth. Next, I investigated whether there was an interaction between the household and neighbourhood immigration-level variables. I examined whether immigrant children and youth were more or less likely to report having elevated mental health problems when concentration of immigrants in their neighbourhood was higher compared to when it was lower, and whether they were more or less likely to use mental health services, after adjusting for mental health need. I then adjusted for factors that may influence the relationship such as age (Alexandre et al. 2008; Lin et al. 1996), sex (Alexandre et al. 2008),

parental use of services (Beiser et al. 2011), and family structure (Georgiades, Boyle, and Fife 2013). Third, given that research has shown that the match between ethnic concentration and person-level ethnicity was associated with mental health services use and mental health status and ethnicity may act as a confounding variable, I studied the influence of ethnicity on the association between person-environment fit and mental health service use and mental health (Alexandre et al. 2008; George and Bassani 2016b). Lastly, given the reports of heterogenous results in mental health outcomes and mental health service use across immigrant subgroups, I stratified the results according to immigrant class (Beiser and Hou 2016; Rousseau and Frounfelker 2019), duration in Canada (Islam 2015; Vang et al. 2017), type of mental health disorder (Georgiades, Boyle, and Duku 2007; Menezes, Georgiades, and Boyle 2011), and type of service used (Gandhi et al. 2016b; Steele, Dewa, and Lin 2007).

2.1.5 Rationale

This study is timely for a number of reasons. Immigrant children and youth make up a large proportion of the Canadian immigrants and refugee population as well as the general children and youth population. In 2016, almost 2.2 million children under the age of 15 were foreign-born (first generation) or had at least one foreign-born parent (second generation), representing 38% of all Canadian children (Statistics Canada 2017a). This percentage was predicted to increase to 49% by 2036 (Statistics Canada 2017a). Furthermore, mental health among youth is a growing concern in today's society. There is inequity in the use of mental health services and unmet needs (McKenzie 2019). To illustrate, a survey conducted by Children's Mental Health Ontario (CMHO) in 2017 showed that half of parents who sought mental health help for their child in Ontario faced challenges in getting the services they needed (McLeod Macey and Tong 2017). Reported challenges included that they did not know where to go (26%) and services were not provided where they lived (14%). My study can have implications for mental health programs that are taking a targeted and wholesome approach and are addressing individual-and-contextual level factors underlying access to services.

Furthermore, the influence of neighbourhood immigrant concentration on the association between mental health and mental health service use and immigrant status is important to study knowing that on arrival, migrants prefer to live in urban centers that are concentrated with other migrants. For instance, over the last two decades, 80% of all immigrants to Ontario initially settled in Ontario's capital city, Toronto, and surrounding areas (Ontario Ministry of Finance 2019). Toronto alone welcomed 118,000 immigrants in 2019, making up 35% of the newcomer population arriving to Canada. Such urban centers may provide opportunities not only in the labor market and education but also access to culturally relevant and language-appropriate social support systems (Chadwick and Collins 2015; Statistics Canada 2017a). It is estimated that migration into these communities will continue to rise as Canada prioritizes immigration (Ontario Ministry of Finance 2019). At the same time, current immigration policies are encouraging migrants to settle in rural areas, which are often less migrant and ethnically diverse (Government of Canada 2019). My study has the potential to inform several of these relevant immigration policies.

2.2 Methods

2.2.1 Data and population

This study used data from the 2014 Ontario Child Health Study (Boyle, Georgiades, Duncan, Comeau, et al. 2019), a large comprehensive epidemiological research survey that examined the physical and mental health of children and youth residing in Ontario (see: https://ontariochildhealthstudy.ca/). The survey was designed by a research team at the Offord Centre for Child Studies in partnership with the Ontario Ministry of Education, Ministry of Health and Long-Term Care, and the Ministry of Child and Youth Service, and was conducted by Statistics Canada. The survey was approved by the Hamilton Integrated Research Ethics Board at McMaster University.

Details of the study design and methodology have been previously published (Boyle, Duncan, et al. 2019; Boyle, Georgiades, Duncan, Comeau, et al. 2019; Duncan et al. 2019). Briefly, neighbourhoods in Ontario were first stratified into low, middle, and high-income levels using the Canada Child Tax Benefit file in Ontario as a sampling frame. Equal number of neighbourhoods from each stratum were then randomly selected. Within the selected neighbourhoods, private households with children between the ages of four and 17 were then also stratified by three levels of income based on median household income (<$49K, $49-79K, >$79K), and equal number of households within each stratum were randomly selected. In each selected household, a child was randomly selected to be the "targeted child" from whom all survey data were collected. Up to three siblings of the "targeted child" were then randomly selected to complete a subset of the survey. In this study, I treated data from the "selected child" and siblings similarly, given that all the study variables I included were based on questions that were asked to all children and youth. Researchers from Statistics Canada interviewed the primary caregiver or the "person most knowledgeable", partner of the primary caregiver, and youth who were 12 years or older, in their respective households. I focused only on the responses offered by the person most knowledgeable (and not the partner or youth). Families were interviewed between October 2014 and October 2015. A total of 10,802 children and youth aged 4-17 years were included in the survey who were nested in 6,537 households, in 484 neighbourhoods.

2.2.2 Measures

Outcome variables: I focused on two binary dependent variables: (1) whether the child/youth had elevated mental health problems, and (2) whether the parent reported their child/youth to have used mental health services in the last six months. In the original survey, mental health problems were captured with the Emotional Behavioural Scale - a scale that approximated DSM-5 (Diagnostic and Statistical Manual of Mental Disorders) criteria and focused on the following conditions: generalized anxiety disorder, separation anxiety disorder, major depressive disorder, social anxiety disorder (social phobia), attention-deficit hyperactivity disorder, oppositional-defiant disorder, and conduct disorder. A total of 52 questions were asked such as whether the child/youth was a) worried that bad things will happen to loved ones, and b) got no pleasure from usual activities. Each question was scored 0, 1, or 2, indicating responses of 'never or not true',

'sometimes or somewhat true', and 'often or very true', respectively. The raw scores were then summed to form a score to measure each disorder. Since this variable in linear form assumes that the difference between a score of 30 and 29 is the same as between score of five and four and because I wanted first to model mental health problems and then model mental health service use after adjusting for mental health problems, I transformed this variable into a dichotomous variable using prevalence cut-offs from a diagnosis survey that was also a part of the OCHS called MINI-KID (for more details on MINI-KID see: (Sheehan et al. 2010)) which was administered to the person most knowledgeable only about the targeted kid. The binary variable was coded 1 if a child/youth's score was equal to or higher than the prevalence cut-off of 18 and was coded 0 if it was lower. This approach was taken after taking expert advice and leveraging Ontario Child Health Study's survey design. However, given that the distribution of the scores was skewed in that most children/youth had total scores that were less than ten (indicating good mental health, Figure 3), I then conducted sensitivity analysis where the prevalence cut-off was set to be higher or lower than 18 (discussed further below).

In the dataset, there was also no single variable that encompassed the information for mental health services use but rather, the variable was derived from multiple questions. In one set of questions, the person most knowledgeable was asked whether the child/youth had seen a psychiatrist, psychologist, social worker, mental health counselor, a general therapist, and/or a school guidance counselor for concerns with their mental health. In a second set of questions, they were asked whether the child/youth discussed their mental health at their family doctor or pediatrician's office, walk-in-clinic, urgent care, and/or general hospital in the past six months. Lastly, they were asked whether the child/youth obtained advice or help for their mental health from their teacher or school, someone on a phone helpline or crisis hotline, a spiritual or religious leader, and/or some other person or place. Responses to these several questions were collapsed into a single variable that was coded one if the child/youth was reported to have spoken about their mental health to any one of those contacts and/or in those settings in the last six months, and zero otherwise.

Explanatory variables: Children in families with at least one parent who was born outside Canada were identified as immigrants while those households in which both parents were born in Canada were categorized as non-immigrants, rendering the household immigrant variable to be binary. For single parent homes, the immigrant status of the single parent was taken to be the immigrant status of the household. The percentage of individuals born outside Canada in a neighbourhood determined the immigrant concentration variable. It was modeled as a continuous variable in 10% increments and was grand mean centered in order to make the interaction term easier to interpret and the intercept meaningful. The wide distribution of the neighbourhood immigration concentration variable provided support to model it as a linear variable (Figure 2). It is important to note that common to previous area-level studies, "neighbourhood" in this study was spatially defined as census tract areas or "small, relatively stable geographic areas that usually have a population of less than 10,000 persons, based on data from the previous Census of Population Program" (Cutrona, Wallace, and Wesner 2006; Statistics Canada 2017b). In rural settings, dissemination areas were combined to form a census tract area. The interaction variable was created by interacting (or multiplying) two variables: household immigrant status and immigrant neighbourhood concentration.

Covariates used for adjustment: Variables that have been shown in the literature to influence the relationship between having a mental health disorder and/or using mental health services, and immigrant status were adjusted for in the analysis. Individual-level variables included sex (Baroud et al. 2019; Kwak 2016; Roberts et al. 2018) and age (Alexandre et al. 2008). In the mental health service use models, mental health problems were also adjusted for. Apart from household income which was the total income of all working members of the household before taxes, all household-level variables were created from the responses of the "person-most-knowledgeable". Household-level variables included household income (Beiser et al. 2002), ethnicity (Beiser et al. 2010; Roberts et al. 2018; Saunders, Gill, et al. 2018), marital status (Arango et al. 2021; Roberts et al. 2018), highest education completed (Baek et al. 2021; Georgiades, Boyle, and Fife 2013; Roberts et al. 2018; Steele, Dewa, and Lin 2007), employment status (Arango et al. 2021; Baek et al. 2021), age of parent (Edwards and Roff 2010; Zondervan-Zwijnenburg et al. 2020), lone-parent status (Georgiades, Boyle, and Fife 2013; Rousseau et al. 2008), prior mental health service use of parent (Beiser et al. 2011, 2014), and number of children in household (Edwards and Roff 2010). Lastly, I adjusted for several neighbourhood-level variables that measured the socioeconomic status of the neighbourhood and/or the availability of mental health resources (Alexandre et al. 2008; Chadwick and Collins 2015; Lin et al. 1996; Ludwig et al. 2014). These variables included percent of households in neighbourhood: that rented, had a lone parent, had no higher education, and were living under the poverty line. The source for neighbourhood-level variables was the 2016 Canadian Census. Detailed descriptions of all included variables are presented in Table 1. All variables except for immigrant concentration were categorical. An epidemiological map showing the relationships between variables in the models is presented in Figure 1.

2.2.3 Analysis

The survey focused on children who were 4 to 11-years old and youth aged 12 and 17, and the households and neighbourhoods that they lived in. Table 2 presents selected characteristics of the study sample as a whole as well as differences in characteristics by immigrant status. There were missing data in at least one variable for 925 children, with the majority missing only one variable (n=613) Missing data were the most common in household-level variables (ethnicity, mental health service use of the person most knowledgeable, and their employment status). To study whether there was a pattern in missing information analytically, I modelled missing data variable as a function of the two dependent variables and covariates at the household level (Table e1). I did not find any statistically significant associations and only data from children with complete information were utilized in the analysis (9% of the sample was dropped).

Data were analyzed using multivariable three-level logistic multilevel regression, with neighbourhood-, household-, and individual-level characteristics modeled at the third, second, and first levels, respectively. A multilevel model, also known as a mixed or hierarchical model, was appropriate for this study given that it took the hierarchical structure of the data into consideration, accounting for the dependence (clustering or correlation) between errors among children in the same household and/or neighbourhood. Two sets of regressions were modelled as fixed-effects random intercept models, one for elevated mental health problems (Y1) and one for the reporting of mental health service use (Y2). I utilized a step-by-step approach to model building, where each step was tested and an attempt was made to keep the models as parsimonious as possible. First, the null (unconditional) random-intercept model was specified (model 1) as:

$$Y_{ijk} = B_0 + \mu_{jk} + e_k$$

where i, j, and k represented a child/youth i, who was nested in household j, in neighbourhood k. Variability in the outcomes was explained by an intercept (B_0), representing the average measure of the outcomes across all neighbourhoods, and two random effects at the household and neighbourhood levels. Using the results, the intraclass correlation coefficient, a statistic that represents the proportion of the variation in the dependent variable that can be attributed to differences between the levels, was calculated in order to determine the degree of clustering in the sample as well as confirm the need to conduct multilevel modelling (Raudenbush and Bryk 2002).

Second, I modelled the outcomes of interest as a function of the immigrant variables independently, without adjusting for any covariates. Model 1 estimated the association between household immigrant status and elevated mental health problems and mental health service use. Model 2 extended model 1 to investigate the association between neighbourhood immigrant concentration, elevated mental health problems and mental health service use, while adjusting for household immigrant status. Model 3 built upon model 2 to consider the influence of neighbourhood immigrant concentration on the association between household immigrant status and mental health outcomes. Fixed-effects random intercept models were then specified in the subsequent models adding variables level by level. In models 4, 5, and 6, variables at individual-, household-, and neighbourhood-levels were added and adjusted for, respectively, many of which were measures of socioeconomic status. Finally, to independently test whether ethnicity changes the association between the immigrant variables and elevated mental health problems and mental health service use as a potential confounding variable, I added the ethnicity of the person most knowledgeable to the final model, Model 7. A likelihood-ratio test was calculated between each step with the understanding that a significant log likelihood ratio chi-squared statistic meant that the more complex model fit the data better than the nested model (Liu 2016). Akaike information criterion (AIC) and Bayesian information criterion (BIC) were used to compare non-nested models (Liu 2016).

The final empirical three-level logistic multilevel regression model for both Y1 (elevated mental health problems) and Y2 (mental health service use) was specified as:

$$Y_{ijk} = B_0 X_0 + B_1 X_{1ij} + B_2 X_{2ijk} + B_3 (X_{1ij} * X_{2ijk}) + \cdots + B_n X_{nijk} + \mu_{jk} + e_k$$

in which the variation in the outcome variables Y was explained by a fixed intercept term (B_0), n fixed effect variables at the individual, household, and neighbourhood levels, and two random effect error terms. Variables measuring household immigrant status and immigrant concentration in the neighbourhood were represented by X_1 and X_2, respectively. The main variable of interest in the models was the interaction term ($X_1 * X_2$). Using a logit link function (the natural logarithm of the odds of the probability of Y=1, expressed as log(p(1-p))), I assumed that the outcome variables had a binomial distribution of errors. Errors were clustered at the highest level, which was at the neighbourhood level. This approach adjusted the standard errors for heteroskedasticity of unknown form. The beta (B) parameters were the additive effect of a one-unit increase in X on the log odds of elevated mental health problems and mental health service use. To aid in the interpretation of the estimates, the beta parameters were exponentiated and reflected the

association between explanatory variables (X) and the odds of reporting elevated mental health problems and mental health service use. Orthogonality or zero covariance across the levels was assumed. Predicted probabilities were then calculated and graphed for Model 7.

In addition, I conducted several sensitivity tests to see if the associations held when I:

a) stratified the results by immigration class: non-refugee immigrants and refugees;
b) stratified the results by duration in Canada: recent immigrants (parent lived in Canada for 15 years or less) and long-term immigrants (parent lived in Canada for more than 15 years);
c) focused on children and youth with a mental health disorder when modelling mental health service use;
d) stratified the results by type of disorder (internalizing disorder and externalizing disorder) when modelling elevated mental health problems;
e) limited the service use outcome variable to specialized mental-health services (psychiatrist, psychologist, and counselor). I removed schools, phone helpline or crisis hotline, the internet, a spiritual or religious leader, and/or some other person or place, from the "service use" dependent variable in this stratified analysis; and
f) removed the "labour" variable, with the understanding that when household income and labour of the "person most knowledgeable" is in the same regression, the effect of the household income variable may not be statistically significant given their correlation.

I also did two other important sensitivity analyses. First, I reran the final model in children and youth separately and graphed the results to see the interaction between immigrant status and neighbourhood immigration concentration. Although both groups face many similar mental health challenges, there have been some reported differences between the two (Ma 2002). It could be that the combined effect of immigration concentration and immigrant household status on mental health outcomes in this study could also be different in children versus youth. Second, focusing on the outcome variable of elevated mental health problems, I tested whether the results were sensitive to the cut-off value that was selected to create the dichotomous variable (the cut-off was selected to be the prevalence as determined by the diagnosis sub-survey MINI-KID) by increasing and decreasing the cut-off value (I decreased the cut-off to the average mental health score of 11 and then I increased the cut-off to 23 (average + one standard deviation)).

Estimates were weighted using conditional sampling weights in order to generalize the findings to the target population of children and youth in Ontario. Adjusted odds ratios, confidence intervals, and the statistical significance of the estimates at the 1%, 5% and 10% levels are presented in tables. Data were managed and analyzed using Stata SE 17.0: melogit for multilevel logistic regression.

2.3 Results

2.3.1 Description of sample

Characteristics of the study sample are presented in Table 2, as a whole and in subgroups categorized by immigrant status. There were 9505 children and youth with complete data available,

of which 3788 and 5717 were from immigrant and non-immigrant households, respectively. Children/youth were from 5751 households that were nested in 348 neighbourhoods.

Approximately 20% of the full sample had elevated mental health problems and 30% used mental health services. More non-immigrants (26%) had elevated mental health problems than immigrants (16%). Likewise, more non-immigrants (38%) used mental health services compared to immigrants (18%). The distribution of the mental health score among children and youth is presented in Figure 4 and displays that it was similarly distributed between the two age groups. Sex was balanced between and within the immigrant and non-immigrant groups. The non-immigrant sample had more youth (62%) while the immigrant sample had more children (57%). In both groups, the most common age category for the person most knowledgeable was between 40-49 (52%) and education level was trade/college/certification (43%). The immigrant sample had slightly more children/youth whose parent had a bachelor's degree or above (29%) compared to non-immigrant sample (22%). On the other hand, the non-immigrant sample (67%) had more children and youth from high-income households ($80,000 or more) than immigrants (46%). The distribution of employment status of the person most knowledgeable and number of children in households were roughly the same between immigrants and non-immigrants. More children/youth from the immigrant sample had married parents (87% in immigrants and 81% in non-immigrants) whereas the percentage of separated, divorced, or widowed parents was higher in the non-immigrant sample (14% in non-immigrants and 9% in immigrants). More children/youth of non-immigrant households had a parent who had used mental health services themselves (45% in non-immigrants and 16% in immigrants). The majority of non-immigrant children/youth belonged to a White ethnic household (92%) whereas there was wide ethnic diversity among the immigrant sample (21% White, 25% South Asian, 23% East Asian, 16% Black and/or Latino, and 8% Arab and/or West Asian).

The immigrant sample consisted mainly of households from large urban areas (90%), whereas the non-immigrant sample also had a high percentage of households from rural (19%) and medium-small urban (23%) areas. In terms of neighbourhood-level variables that determined the sociodemographic profile of the neighbourhoods, it appeared that the immigrant sample consisted of more households that had lived in a low-socioeconomic status area. For instance, while 13% of the immigrant sample lived in neighbourhoods where 60% or more households rented, only 5% of the non-immigrant sample lived in such neighbourhoods. On a similar note, while 10% and 33% of the immigrant sample lived in neighbourhoods where the poverty level was 30% or higher and/or had a high percentage of lone-family households, only 5% and 19% of the non-immigrant sample lived in such neighbourhoods, respectively. Lastly, education status of neighbourhoods was roughly balanced across immigrant and non-immigrant households, but more non-immigrants lived in neighbourhoods where the percent of non-educated was 30% or higher (7% in non-immigrants and 3% in immigrants, respectively).

2.3.2 Null Models

Table 3 presents results from the null models. The left-hand side of the table reports results with elevated mental health problems as the dependent variable (Y1), while results for mental health service use (Y2) are reported on the right-hand side of the table. Intra-class correlations were 0.54 [95% CI: 0.48, 0.60] at the household level and 0.03 [95% CI: 0.02, 0.05] at the neighbourhood

level for elevated mental health problems and 0.51 [95% CI: 0.45, 0.57] and 0.12 [95% CI: 0.07, 0.22] for mental health service use, respectively. This means that 54% and 3% of the variation in having elevated mental health problems was attributed to differences between households and neighbourhoods, respectively. Likewise, 51% and 12% of the variation in reporting the use of mental health services was due to differences at the household and neighbourhood levels. A reported rule of thumb is that intra-class correlations of 5% or more should not be ignored, and that larger intra-class correlations give greater justifications for multilevel modeling (Mehmetoglu and Jakobsen 2002).

2.3.3 Household immigrant status

Tables 4 and 5 present the multivariable multilevel model results for elevated mental health problems and mental health service use, respectively. Unadjusted analysis showed that children and youth from immigrant households had 42% lower odds of having elevated mental health problems compared to children and youth from non-immigrant households (Table 4, Model 1). Unadjusted analysis also showed that children and youth from immigrant households had 70% lower odds of reporting the use of mental health services compared to children and youth from non-immigrant households (Table 5, Model 1).

2.3.4 Influence of neighbourhood immigrant concentration on the association between household immigrant status and outcomes

Unadjusted analysis showed that with each 10% point increase in the number of immigrant households in a neighbourhood, and holding immigrant status constant, the odds of having elevated mental health problems and reporting mental health service use decreased by 11% (95% CI: 6, 16, Table 4, Model 2) and 16% (95% CI: 12, 20, Table 5, Model 2), respectively.

With the inclusion of the interaction term between immigrant status and immigrant concentration in Model 3, results showed that children and youth from immigrant households had lower odds of having elevated mental health problems and reporting the use of mental health services as immigration concentration increased (Figures 5 and 6). The simple slope for immigrants (i.e., deviation from 0) was negative and not statistically significant (simple slope=-0.06, p=0.14) for elevated mental health problems and negative and statistically significant (simple slope=-0.14, p=0.01) for mental health services use.

Non-migrant children/youth also had significantly lower odds of having elevated mental health problems (OR=0.83; 95% CI:0.77, 0.90, Table 4) as immigration concentration increased. Non-migrants also showed lower odds of using mental health services (OR=0.85, 95% CI:0.80, 0.91, Table 5) in immigrant-dense neighbourhoods, however, the combined effect of immigration concentration and immigrant status on mental health service use was not statistically significant among non-migrants after adjusting for household- and neighbourhood-level factors (Table 5, Models 5 & 6).

Analysis of the predicted probabilities graphically also showed that at low immigrant neighbourhood concentrations, the probability of having elevated mental health problems was higher in non-immigrants compared to immigrants, but at higher concentrations, the probability

was higher in immigrants (Figure 5). However, the difference in effect between immigrants and non-immigrants was not statistically significant as evidenced by the overlapping confidence intervals at every level of immigration concentration. For mental health services use, at all concentrations, the probability of reporting the use of services was lower among immigrants than non-immigrants (Figure 6). Moreover, the difference in predicted probability of reporting mental health service use between immigrants and non-immigrants was smaller when the neighbourhood immigrant concentration was low, but was larger when the immigrant concentration was higher. The difference in slope between immigrants and non-immigrants was significant when the neighbourhood immigration concentration was set at its average or at one standard deviation above the average.

In other words, 1) immigrant children and youth had lower odds of having elevated mental health problems and having reported using mental health services compared to non-immigrant children and youth; 2) all children and youth had lower probability of having elevated mental health problems and using mental health services as immigration concentration increased; and, 3) the rate of decline was different between immigrants and non-immigrants. For elevated mental health problems, the rate of decline in the probability was slower among immigrants than non-immigrants whereas for mental health service use, the rate of decline was faster among immigrants. This means that neighbourhood immigration concentration attenuated the effect of household immigrant status on elevated mental health problems and enhanced its effect on mental health services use.

Results from the interactions analysis were consistent across most of the subgroup analyses conducted (Tables 6a, 6b, 7a, 7b). Although it must be mentioned that the association between immigrant status and elevated mental health problems was slightly greater in magnitude for recent immigrants compared to long-term care immigrants and refugees compared to non-refugees (Table 6b). Refugees also showed lower odds of using mental health services compared to when the sample excluded refugees (Table 7b). Interestingly, sensitivity analyses showed that the results for elevated mental health problems were sensitive to the cut-off value selected (Table 6c). When the cut-off value was lowered, the direction of the effect for most variables changed. The results did not change greatly when the cut-off value was increased. Furthermore, the combined effect of neighbourhood immigration concentration and immigrant status on elevated mental health problems also appeared to be different in children compared to the youth. In the combined sample, as mentioned above, at low immigrant neighbourhood concentrations, the probability of having elevated mental health problems was higher in non-immigrants compared to immigrants, but at higher concentrations, the probability was higher in immigrants. In children, however, at all concentrations, the probability of having elevated mental health problems was higher in immigrants compared to non-immigrants (Figure 7). On the other hand, the probability of having elevated mental health problems was lower among immigrant youth compared to non-immigrant youth, at all concentration levels (Figure 7). The effect of neighbourhood immigration concentration on the mental health service use of children and youth was similar, although it appeared that the difference between immigrants and non-immigrants in using services was larger among children compared to youth (Figure 8).

2.3.5 Associations between individual-level characteristics and outcomes

Females had lower odds of both having elevated mental health problems (OR=0.70; 95% CI: 0.62, 0.79, Table 4, Model 4) and reporting mental health services (OR=0.81; 95% CI: 0.71, 0.93, Table 5, Model 4) compared to males. Age of the individual, specifically if they were a child or a youth, was not statistically significantly associated with using mental health services (OR=0.95; 95% CI: 0.82, 1.10, Table 5, Model 5), but it was seen that youth had lower odds of having elevated mental health problems compared to children (OR=0.85; 95% CI: 0.74, 0.97, Table 4, Model 4). All these associations were consistent after household and neighbourhood-level factors were adjusted for (Models 5 and 6).

2.3.6 Associations between household-level characteristics and outcomes

From the household-level variables added to the model, it appeared that children and youth of older parents had higher statistically significant odds of having elevated mental health problems (Table 4, Model 5) but lower odds of using services (Table 5, Model 5), compared to younger-aged parents. An inverted U-shaped pattern was noticed between household income and odds of having elevated mental health problems, whereby the odds increased as household income increased up to income of $80000-109999 when odds started to decrease (Table 4, Model 5). In the opposite direction, a U-shaped pattern was seen in the association between household income and odds of using mental health services (Table 5, Model 5). Households with income $20000-49999 had 1.25 greater odds (95% CI: 0.91, 1.71) of reporting the use of mental health services relative to households with incomes less than $20,000 (Table 5, Model 5). The odds decreased to 1.16 (95% CI: 0.80, 1.68) and 1.30 (95% CI: 0.88, 1.91) for households with incomes of $50000-79999 and $80000-109999, relatively, while households with annual incomes greater than $110,000 had 1.53 greater odds of reporting use of mental health services compared to households with incomes less than $20,000 (95% CI: 1.06, 2.21). The association between household income and elevated mental health problems and mental health service use was statistically not significant, however. When sensitivity analysis was done to test whether the lack of statistical significance was influenced by the inclusion of the labour variable, results showed that the associations continued not to be statistically significant after removing the labour variable (Tables 6a, 7a).

Furthermore, compared to parents who were employed full-time, children and youth with parents who worked part-time, were self-employed, or who were non-employed all together had higher statistically significant odds of having elevated mental health problems (OR=1.58, 95% CI: 1.22, 2.05; OR=1.55, 95% CI: 1.23, 1.96; OR=1.80, 95% CI: 1.43, 2.27, respectively, Table 4, Model 5). There was no statistically significant association between labour status of parents and the odds of children/youth having reported using services (OR=1.02, 95% CI: 0.79, 1.32; OR=0.88, 95% CI: 0.69, 1.13; OR=1.20, 95% CI: 0.97, 1.48, for part-time, self-employed, and non-employed, respectively, Table 5, Model 5).

Children/youth with parents who were single and never married had significantly 1.68 (95% CI: 1.18, 2.38) greater odds of having elevated mental health problems (Table 4, Model 5) and 1.71 (95% CI: 1.21, 2.41) greater odds of reporting the use of mental health services (Table 5, Model

5). Children/youth with parents who were separated, divorced, or widowed had 1.85 greater odds (95% CI: 1.45, 2.37) of having reported the use of services than whose parents were married or in common-law.

The odds of having elevated mental health problems were lower when the number of children in the household was two to five, compared to single-child households (OR=0.77, 95% CI: 0.63, 0.95; OR=0.69, 95% CI: 0.55, 0.88; OR=0.45, 95% CI: 0.30, 0.67; OR=0.42, 95% CI: 0.25, 0.72, for two, three, four, and five and more-children households, respectively, Table 4, Model 5). The odds of having reported the use of services were higher when there were two (OR=1.16, 95% CI: 0.92, 1.47) children in the home and lower when there were three or more children in the home, but those associations were statistically not significant (Table 5, Model 5). Lastly, the odds were 3.61 (95% CI: 3.00, 4.35) greater for having elevated mental health problems (Table 4, Model 5) and 3.24 (95% CI: 2.69, 3.91) greater for reporting mental health service use if the parent had ever used mental health services in their lifetime (Table 5, Model 5).

2.3.7 Associations between neighbourhood-level characteristics and outcomes

Most associations between neighbourhood-level factors and either elevated metal health problems or mental health service use were not statistically significant. Children and youth living in medium-sized neighbourhoods had 0.91 (95% CI: 0.73, 1.14) lower odds of having elevated mental health problems compared to rural neighbourhoods (Table 4, Model 6). With respect to service use, children and youth living in large-sized neighbourhoods, surprisingly, had lower odds of using services compared to rural neighbourhoods (OR=0.86, 95% CI: 0.55, 1.36, Table 5, Model 6). Medium-sized neighbourhoods had 1.35 (95% CI: 0.93, 1.97) greater odds of reporting mental health service use compared to rural neighbourhoods though. For both outcomes, the variables of percentage of renters and lone-parent households in the neighbourhood were not statistically significant, and the relationship between education level of households in a neighbourhood and the outcomes was unclear (Model 6). Lastly, the odds of having elevated mental health problems increased with increasing poverty level (Table 4, Model 6). The same gradient was not seen with mental health service use, but it was seen that neighbourhoods with greater than 10% of households under the poverty line had greater odds of using mental health services (OR=1.44, 95% CI: 1.13, 1.84; OR=1.46, 95% CI: 0.92, 2.33; OR=1.18, 95% CI: 0.69, 2.01, respectively) compared to neighbourhoods with low poverty level (Table 5, Model 6).

2.3.8 Confounding effect of ethnicity status

Ethnicity did not influence the moderating effect of immigrant neighbourhood concentration on the associations between immigrant status and mental health and mental health service use. Results instead showed that children and youth from South Asian and Black or Latino households had 36% (OR=0.64, 95% CI: 0.44, 0.92) and 44% (OR=0.56, 95% CI: 0.38, 0.82) significantly lower odds of having elevated mental health problems compared to Whites, while children and youth from East Asian (OR=1.04, 95% CI: 0.73, 1.49) and Arab and West Asian (OR=1.40, 95% CI: 0.92, 2,13) households had greater odds, albeit the association was not statistically significant (Table 4, Model 7). Children and youth from all ethnic households had lower odds of reporting the use of mental health services compared to Whites (Table 5, Model 7); however, all ethnicity associations were not statistically significant.

2.4 Discussion

2.4.1 Summary of findings and comparison to previous literature

In this study, I investigated the associations between household immigrant status, concentration of immigrants in a neighbourhood, and the interaction between these two variables, with the odds of having elevated mental health problems and reporting mental health service use, in a large epidemiological cross-sectional study of children and adolescents in Ontario. To my knowledge, this is the first population-based study to investigate the interaction between neighbourhood-immigrant concentration and household immigrant status on mental health services use in Ontario. A unique contribution of this study is also that it investigated whether and how the interaction differed across different levels of need and subgroups of immigrants knowing that immigrants are a heterogenous group.

I found that children and youth from immigrant households had lower odds of both having elevated mental health problems and reporting the use of mental health services after adjusting for mental health problems. These results align with the results from other recent studies that used data from the Ontario Child Health Study (OCHS) (Georgiades et al. 2019; Waddell et al. 2019) as well as the original OCHS survey that was conducted in 1983. Munroe-Blum et al. (1989) had shown that being an immigrant child was not a risk indicator for psychiatric disorder and that immigrant children and youth used mental health and social services significantly less often than their native peers (Munroe-Blum et al. 1989). As mentioned at the outset of this paper, conclusions on the mental health of immigrant or refugee adolescents are varied across studies. While some clinic-based and small-community based studies found higher rates of distress in immigrant youth and children, other large community-based studies reported that disorders are not different in immigrant children compared to native-born (Lin et al. 1996). There are also reported inter-group and intra-group differences within immigrant groups (Kim and Lee 2021; Mackenzie et al. 2016). In my analysis, I saw that long-term immigrants had lower odds of utilizing services compared to non-immigrants than recent immigrants did (Table 7b). The difference can be because the degree to which immigrants face barriers in using services can depend on English-language abilities, stigma, and level of assimilation (Kim and Lee 2021). Furthermore, lower odds of using mental health services among immigrants could also be an access issue whereby immigrant and/or ethnic concentrated neighbourhoods lack services (White, Haas, and Williams 2012). This is especially true if there is a correlation between immigrant concentration and neighbourhood socioeconomic disadvantage (White, Haas, and Williams 2012). In fact, descriptive analysis showed that immigrant children and youth included in the sample were from socioeconomically disadvantaged households.

Addressing the main research question, although it was seen that immigrant children and youth had lower odds of having elevated mental health problems in immigrant-dense neighbourhoods, the interaction between household immigrant status and neighbourhood immigrant concentration was not statistically significant in this model. For mental health service use, it was seen that both non-immigrants and immigrants had lower odds of reporting the use of mental health services as immigrant concentration increased. While the effect was not statistically significant among non-immigrants, it was statistically significant in immigrants. In fact, the slope analysis showed that the rate of decrease in the probability of using services was greater among immigrants compared

to non-immigrants. These results show that the person-environment fit theory does not always hold.

It is also important to highlight that this study showed that on average, non-immigrant children and youth had lower odds of having elevated mental health problems as the immigrant concentration increased given that the influence of immigrant concentration on the mental health of non-immigrants is not clear in the literature. One Canadian study showed immigrant concentration to have no effect on the mental health of non-immigrants (Menezes, Georgiades, and Boyle 2011) while another reported worse emotional mental health among children in immigrant-dense neighbourhoods (Georgiades, Boyle, and Duku 2007). This study contradicts those findings and again goes against what the person-environment theory suggests. Instead, it hints that there may be contextual benefits to living in immigrant-dense neighbourhoods for non-immigrants. Such neighbourhoods may provide sense of belongingness and community and increase one's social capital. Similar results were found by Emerson et al. (2022) (Emerson et al. 2022).

The direction and magnitude of the associations were to a large extent similar across subgroups. However, when the immigrant sample was restricted to refugees (excluding non-immigrant refugees such as immigrants who entered through economic class), children and youth from refugee households showed lower odds of receiving mental health services compared to non-migrants as immigrant concentration increased. They also showed higher odds of having elevated mental health problems. The mental health vulnerability of refugees and the barriers they face in obtaining care has been previously published and includes both structural and systematic factors (e.g., costs of care, language barriers, holistic care) as well as social and individual level factors (e.g., stigma, social networks, understanding of mental health) (Morassaei et al. 2022; Salam et al. 2022). Subgroup analyses also showed there to be differences between children and youth when it came to elevated mental health problems. It appeared that immigrant children had a greater probability of having elevated mental health problems compared to non-immigrant children and that immigration concentration did not seem to have an effect on immigrant children ($p=0.57$). For youth, on the other hand, it seemed that immigrant youth had a lower probability of having elevated mental health problems and that as neighbourhood concentration increased, the probability significantly decreased further ($p=0.02$). These results highlight the need to study mental health outcomes in children and youth separately and explore why neighbourhood immigration concentration may influence mental health outcomes of these two groups differently. To my knowledge, differences between immigrant children and youth have not been explored to a large extent in the Canadian context (Belhadj Kouider, Koglin, and Petermann 2015). Such analysis would have implications for policy and programs given that a lot of programming is directed toward both children and youth.

My study results differed from the few studies that have reported a statistically significant effect of immigrant concentration on the mental health of immigrants (Martinez and Polo 2018; Menezes, Georgiades, and Boyle 2011; Stafford, Newbold, and Ross 2011). One possible reason for the difference is because unlike many previous studies, I have adjusted for several possible confounding factors to account for the fact that mental health disorder diagnoses and mental health service use are influenced by many individual and contextual level factors (Alexandre et al. 2008; Hurlburt et al. 2004; D. Kim 2008; Martinez and Polo 2018; Menezes, Georgiades, and Boyle

2011). It is known that certain immigrant groups are more likely to live in segregated neighbourhoods that have less access to health care resources and have a high concentration of low socio-economic households (White, Haas, and Williams 2012). Neighbourhood effects tend to be overestimated when individual-level factors are not included and effects of household selection into a neighbourhood are not considered (Das-Munshi et al. 2019; Pickett and Wilkinson 2008). To minimize such selection bias, I adjusted for many confounding variables.

Considering the results obtained, more than immigrant concentration, it could be the match or mismatch between socioeconomic disadvantage or ethnicity of an individual and their community that was associated with having mental health disorder (Boyle, Georgiades, Duncan, Wang, et al. 2019; S. W. Choi et al. 2019; Chow, Jaffee, and Snowden 2003; Cutrona, Wallace, and Wesner 2006; Durbin et al. 2015a; Manski 2010). Martinez and Polo (2018) found that increased fit between youth cultural values and neighbourhood Latinx and immigrant concentration was associated with fewer externalizing problems, but only in higher socioeconomic neighbourhoods in the USA (Martinez and Polo 2018). Durbin et al. (2015) showed that living in more deprived neighbourhood quintiles in Ontario was associated with greater use of mental health services, but increases were smaller for immigrants than for long-term residents (Durbin et al. 2015a). Moreover, in many studies, the definition of "immigrant status" was confounded by ethnicity status (Georgiades, Boyle, and Fife 2013). A more precise interaction variable would include both immigrant concentration and race/ethnic concentration. This was not possible in this study as the dataset I used did not include a measurement of ethnic concentration. I, instead, investigated the effect of ethnicity on the relationship between immigrant status and mental health by adding it in a stepwise manner and analyzing the change in effect sizes. Results showed that ethnicity did not change the effect of the interaction between immigrant status and neighbourhood immigrant concentration on both outcomes of interest. Also, ethnicity was not a significant predictor for mental health service use. However, children and youth with a South Asian or Black or Latino parent had statistically significant lower odds of having a disorder compared to Whites while those with Arab or West Asian parent had greater odds. These results align with previous research and highlight that immigrants are a heterogenous group and that to truly understand the contextual influence of immigrant concentration on the use of mental health services for immigrants, race/ethnicity of an individual, and racial/ethnic composition of neighbourhood must be considered (Chiu et al. 2018; George and Bassani 2016a; Walter Rasugu Omariba et al. 2014).

That being said, my results aligned with some previous studies that did not find a statistically significant association between the combined effect of immigrant/ethnic concentration and immigrant status/ethnicity and mental health (Guan et al. 2020; Kimber et al. 2015). George and Bassani (2016) did not find that one's ethnicity interacted with their neighbourhood ethnic concentration to influence the likelihood of being in good health (George and Bassani 2016b). Likewise, Martinez and Polo (2018) showed that increased fit between youth cultural values and neighbourhood Latinx and immigrant concentration was not associated with fewer externalizing problems in their study sample. They did, however, find an association in higher socioeconomic status neighbourhoods (Martinez and Polo 2018). Choi, Ramos, et al. (2018) found the association of racial and ethnic social networks with mental health service utilization and depression diagnosis to be significant and negative among African Americans, but the association was not significant among Hispanic, Asian, and non-Hispanic white respondents (Choi et al. 2019). Lastly,

Beiser et al. (2010) using Canadian data reported that emotional problems among immigrant children were not associated with immigrant neighbourhood density (Beiser et al. 2010).

2.4.2 Strengths and limitations

It is important to note the limitations of this study. First, due to the cross-sectional nature of the study, I was unable to make causal inferences. To tease out the influence of factors such as duration in Canada and related variables such as income status, a longitudinal study is needed. Second, for the purpose of this study, only data from the 2016 Canadian Census variables that were linked to the OCHS was used. This limited the neighbourhood-level variables used. In future research, it would be useful to include ethnic concentration and physician and services density.

Third, data from OCHS were also not available to assess social networks of individuals. It may be that an immigrant household is living in a highly-immigrant concentrated neighbourhood, but has a small network within their neighbourhood and instead, has a larger network that is dispersed in geography (e.g., have a network through their workplace or school). Other missing variables in the analysis included immigration generation status (Pottie et al. 2015) and age at immigration (Patterson, Kyu, and Georgiades 2013). Fourth, caution must be made when generalizing the study results to all immigrants as the interviews were conducted in English and thus, parents who do not speak English fluently were under-sampled. Fifth, although the study results were robust, the study results and implications were limited to the methodological and analytical decisions that were made. Results could have differed if variables were transformed and/or if the models were specified differently (as was seen when the cut-off value of the mental health score was lowered to create the dichotomous elevated mental health problems variable). Lastly, the data were from 2014 when mental health rates and mental health services use were different than what it is at present (Halsall et al. 2019; Phillips and Yu 2021).

Strengths of this study should also be mentioned. The data used in this study came from OCHS which is the most comprehensive mental health epidemiological study conducted in Ontario to date, with a large sample size. In OCHS, a three-stage sampling strategy was used to enlist all four to 17-year-old children and adolescents in families that included cluster sampling and stratification by household and neighbourhood income. This ensured that families in the same residential areas were over-sampled to allow for contextual influences to be studied as well as to select families at different ends of the socioeconomic scale. The most important strength of this study, in my opinion, was that I studied both elevated mental health problems and mental health service use using the same data/sample. It allowed me to first study the influence of immigrant concentration on the association between immigrant status and elevated mental health problems. I then studied the influence of the interaction on mental health service use after adjusting for mental health problems. Some previous studies that showed low mental health service use in immigrants without adjusting for mental health need may be biased because immigrants show low mental health needs.

Furthermore, the scales and variables in OCHS were tested and built upon using existing tools and previous work. For instance, OCHS 2014 replicated some tools that were used in the 1983 OCHS in order to be able to make comparisons and build upon it (Munroe-Blum et al. 1989). Moreover, the OCHS Emotional Behavioural Scale was based on DSM-5 criteria and showed high reliability and validity scores (Duncan et al. 2019). Moreover, by using linked survey and census data from

children and youth from households across neighbourhoods in Ontario, and complex multilevel models, I was able to adjust for potential factors at individual-, household-, and neighbourhood levels that may influence the association between immigrant status and mental health. I also used a broad definition for "mental health service use" knowing that mental health care is currently being provided through different avenues, professionally and informally. Previous studies based solely on administrative data failed to capture mental health care contacts outside of physician-based care. Lastly, I conducted multiple subgroup analyses to show the robustness of the results as well as investigate whether they were heterogenous.

2.4.3 Implications for research and policy

Future research can be contextualized considering the study limitations and findings. First, it would be interesting to use longitudinal data to assess trends in mental health problems and mental health service use as the immigrant composition in neighbourhoods change. Second, it is worth exploring whether ethnic concentration plays a role in influencing the relationship between immigrant status and mental health variables. Alternatively, with a larger sample size, the models can also be run within sub-samples stratified by ethnicity. Both quantitative and qualitative studies can also be designed to explore the role of social networks in developing mental health disorders and utilizing mental health services. Furthermore, the service use outcome variable was an amalgamated variable. Future research can investigate whether the associations differ depending on service used, formal or informal. Lastly, more methodological studies can be designed that test the sensitivity of the results when variables and models are altered. For instance, in this study, it was found that when the prevalence cut-off value for the emotional behavioural scale was lowered to create the elevated mental health outcome variable, the regression results differed. This was probably due to the left-skewed distribution of the mental health variable. It leads to question how results would differ if different approaches to variable creation and analysis is undertaken.

Important contributions of this study were that it showed that a) immigrants had lower probability of reporting the use of mental health services as neighbourhood immigrant concentration increased while adjusting for mental health needs, and b) non-immigrants had lower probability of having elevated mental health problems in immigrant-concentration neighbourhoods. To my best knowledge, this is the first study that has investigated the influence of immigration concentration on the association between immigrant status and mental health service use. Although the findings should be validated in other studies first, and the reasons behind these results must be explored both quantitatively and qualitatively, the study results have a few implications on policy and programs that must be mentioned. First, it suggests that immigrants with mental health problems that are living in immigrant concentrated neighbourhoods may be facing barriers in using mental health services. These neighbourhoods should be targeted for mental health programming and policies. For instance, funding to mental health programs in these areas could be increased. Also, health professionals can work with community members in immigrant-concentrated neighbourhoods to spread awareness about existing mental health programs. Second, given that non-immigrants had lower probability of having elevated mental health problems in immigrant-concentrated neighbourhoods, it suggests that mixed-migrant status neighbourhoods may be beneficial for improving mental health outcomes. Of course, the protective effects of immigrant-dense neighbourhoods on mental health needs to be explored further.

Furthermore, results showed that approximately 41% and 52% of the variation in mental health problems and mental health service use was at the household level, respectively while 3% and 12% of the variation was at the neighbourhood level. These findings highlight the importance of not viewing immigrants as a homogenous group. The range of individual, family, and environmental factors associated with mental health service use and mental health implies that mental health of immigrants is a complicated topic and future policies, programs, or studies should address the interactions between different levels.

2.5 References:

Abelson, Julia et al. 2018. "Uncertain Times: A Survey of Canadian Women's Perspectives toward Mammography Screening." *Preventive Medicine* 112(April): 209–15. https://doi.org/10.1016/j.ypmed.2018.04.021.

Ahmad, Farah et al. 2016. "Burden of Common Mental Disorders in a Community Health Centre Sample." *Canadian Family Physician* 62(12): e758–66.

Akiva, Moshe Ben, Daniel McFadden, and Kenneth Train. 2019. "Foundations of Stated Preference Elicitation: Consumer Behavior and Choice Based Conjoint Analysis." *Foundations and Trends in Econometrics* 10(1–2): 1–144.

Akresh, Ilana Redstone. 2006. "Occupational Mobility among Legal Immigrants to the United States." *International Migration Review* 40(4): 854–84.

Alam, Khurshid, and Ajay Mahal. 2014. "Economic Impacts of Health Shocks on Households in Low and Middle Income Countries: A Review of the Literature." *Globalization and Health* 10(1).

Alegría, Margarita, Kristine M. Molina, and Chih Nan Chen. 2014. "Neighborhood Characteristics and Differential Risk for Depressive and Anxiety Disorders across Racial/Ethnic Groups in the United States." *Depression and Anxiety* 31(1): 27–37.

Alexandre, Pierre Kébreau et al. 2008. "Predictors of Outpatient Mental Health Service Use by American Youth." *Psychological Services* 5(3): 251–61.

Althubaiti, Alaa. 2016. "Information Bias in Health Research: Definition, Pitfalls, and Adjustment Methods." *Journal of Multidisciplinary Healthcare* 9: 211–17.

American Psychiatric Association. 2013. "Diagnostic and Statistical Manual of Mental Disorders." https://psychiatryonline.org/doi/book/10.1176/appi.books.9780890425596 (June 14, 2022).

Anderson, Bridget, and Scott Blinder. 2019. "Who Counts as a Migrant? Definitions and Their Consequences." *The Migration Observatory*. https://migrationobservatory.ox.ac.uk/resources/briefings/who-counts-as-a-migrant-definitions-and-their-consequences/ (August 27, 2022).

Anderson, J G. 1973. "Health Services Utilization: Framework and Review." *Health services research* 8(3): 184–99. http://www.ncbi.nlm.nih.gov/pubmed/4593850%0Ahttp://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=PMC1071757.

Arango, Celso et al. 2021. "Risk and Protective Factors for Mental Disorders beyond Genetics: An Evidence-Based Atlas." *World Psychiatry* 20(3): 417–36.

Arya, Akshaya Neil, and Thomas Piggott. 2018. *Under-Served: Health Determinants of Indigineous, Inner-City, and Migrnt Populations in Canada*. ed. Canadian Scholars. Toronto.

Aryal, Komal et al. 2021. "Nursing Home Resident Admission Characteristics and Potentially Preventable Emergency Department Transfers." *Journal of the American Medical Directors Association*. https://doi.org/10.1016/j.jamda.2021.11.020.

Axelrad, Hila, Erika L. Sabbath, and Summer Sherburne Hawkins. 2018. "The 2008–2009 Great Recession and Employment Outcomes among Older Workers." *European Journal of Ageing* 15(1): 35–45.

Baek, Kelly et al. 2021. "Factors Influencing Formal and Informal Resource Utilization for Mental Distress Among Korean Americans in Southern California." *Journal of Immigrant and Minority Health* 23(3): 528–35. https://doi.org/10.1007/s10903-020-01050-1.

Bailey, Rahn Kennedy, Holly L. Blackmon, and Francis L. Stevens. 2009. "Major Depressive Disorder in the African American Population: Meeting the Challenges of Stigma, Misdiagnosis, and Treatment Disparities." *Journal of the National Medical Association* 101(11): 1084–89.

Balintic, Vanessa. 2022. "Advocates, Critics Warn Ontario's Planned Changes to Long-Term Care Are a Violation of Patient Rights." *CBC News*.

Barnes, Steve. 2016. *Health Care Access for the Uninsured in Ontario Symposium Report*. https://www.wellesleyinstitute.com/wp-content/uploads/2017/01/Health-Care-Access-for-the-Uninsured-Symposium-Report.pdf.

Baroud, Evelyne et al. 2019. "Suicidality among Lebanese Adolescents: Prevalence, Predictors and Service Utilization." *Psychiatry Research* 275(March 2019): 338–44. https://doi.org/10.1016/j.psychres.2019.03.033.

Barwick, Melanie et al. 2013. "Profiles and Service Utilization for Children Accessing a Mental Health Walk-In Clinic versus Usual Care." *Journal of Evidence-Based Social Work* 10(4): 338–52.

Bauer, Greta R. et al. 2021. "Intersectionality in Quantitative Research: A Systematic Review of Its Emergence and Applications of Theory and Methods." *SSM - Population Health* 14(April): 100798. https://doi.org/10.1016/j.ssmph.2021.100798.

Beiser, Morton. 2005. "The Health of Immigrants and Refugees in Canada." *Canadian Journal of Public Health* 96(SUPPL. 2).

———. 2010. "Predictors of Emotional Problems and Physical Aggression among Children of Hong Kong Chinese, Mainland Chinese and Filipino Immigrants to Canada." *Social Psychiatry and Psychiatric Epidemiology* 45(10): 1011–21.

———. 2011. "Regional Effects on the Mental Health of Immigrant Children: Results from the New Canadian Children and Youth Study (NCCYS)." *Health and Place* 17(3): 822–29. http://dx.doi.org/10.1016/j.healthplace.2011.03.005.

———. 2014. "Predictors of Immigrant Children's Mental Health in Canada: Selection, Settlement Contingencies, Culture, or All of the Above?" *Social Psychiatry and Psychiatric Epidemiology* 49(5): 743–56.

Beiser, Morton, and Feng Hou. 2016. "Mental Health Effects of Premigration Trauma and Postmigration Discrimination on Refugee Youth in Canada." *Journal of Nervous and Mental Disease* 204(6): 464–70.

Beiser, Morton, Feng Hou, Ilene Hyman, and Michel Tousignant. 2002. "Poverty, Family Process, and the Mental Health of Immigrant Children in Canada." *American Journal of Public Health* 92(2): 220–27.

de Bekker-Grob, Esther W. et al. 2019. "Are Healthcare Choices Predictable? The Impact of Discrete Choice Experiment Designs and Models." *Value in Health* 22(9).

de Bekker-Grob, Esther W., Bas Donkers, Marcel F. Jonker, and Elly A. Stolk. 2015. "Sample Size Requirements for Discrete-Choice Experiments in Healthcare: A Practical Guide." *Patient* 8(5): 373–84.

Belhadj Kouider, Esmahan, Ute Koglin, and Franz Petermann. 2015. "Emotional and Behavioral Problems in Migrant Children and Adolescents in American Countries: A Systematic Review." *Journal of Immigrant and Minority Health* 17(4): 1240–58. http://dx.doi.org/10.1007/s10903-014-0039-2.

Blakely, Tony et al. 2021. "Disease-Related Income and Economic Productivity Loss in New Zealand: A Longitudinal Analysis of Linked Individual-Level Data." *PLoS Medicine* 18(11): 1–19. http://dx.doi.org/10.1371/journal.pmed.1003848.

Bonsang, Eric. 2009. "Does Informal Care from Children to Their Elderly Parents Substitute for Formal Care in Europe?" *Journal of Health Economics* 28(1): 143–54.

Botly, Leigh C.P. et al. 2020. "Recent Trends in Hospitalizations for Cardiovascular Disease, Stroke, and Vascular Cognitive Impairment in Canada." *Canadian Journal of Cardiology* 36(7): 1081–90. https://doi.org/10.1016/j.cjca.2020.03.007.

Boulanger, J. M. et al. 2018. "Canadian Stroke Best Practice Recommendations for Acute Stroke Management: Prehospital, Emergency Department, and Acute Inpatient Stroke Care, 6th Edition, Update 2018." *International Journal of Stroke* 13(9): 949–84.

Boyer, Martin et al. 2017. *Long-Term Care Insurance: Knowledge Barriers, Risk Perception and Adverse Selection*. Montreal.

Boyle, Michael H., Katholiki Georgiades, Laura Duncan, Li Wang, et al. 2019. "Poverty, Neighbourhood Antisocial Behaviour, and Children's Mental Health Problems: Findings from the 2014 Ontario Child Health Study." *Canadian Journal of Psychiatry* 64(4): 285–93.

Boyle, Michael H., Katholiki Georgiades, Laura Duncan, Jinette Comeau, et al. 2019. "The 2014 Ontario Child Health Study—Methodology." *Canadian Journal of Psychiatry* 64(4): 237–45.

Boyle, Michael H., Laura Duncan, et al. 2019. "The 2014 Ontario Child Health Study Emotional Behavioural Scales (OCHS-EBS) Part II: Psychometric Adequacy for Categorical Measurement of Selected DSM-5 Disorders." *Canadian Journal of Psychiatry* 64(6): 434–42.

Bradley, Cathy J., David Neumark, and Scott Barkowski. 2013. "Does Employer-Provided Health Insurance Constrain Labor Supply Adjustments to Health Shocks? New Evidence on Women Diagnosed with Breast Cancer." *Journal of Health Economics* 32(5): 833–49. http://dx.doi.org/10.1016/j.jhealeco.2013.06.008.

Bradley, Cathy J., David Neumark, Heather L. Bednarek, and Maryjean Schenk. 2005. "Short-Term Effects of Breast Cancer on Labor Market Attachment: Results from a Longitudinal Study." *Journal of Health Economics* 24(1): 137–60.

Bradley, Elizabeth H. et al. 2004. "Intended Use of Informal Long-Term Care: The Role of Race and Ethnicity." *Ethnicity and Health* 9(1): 37–54.

Brau, R, and LR Bruni. 2008. "Eliciting the Demand for Long-Term Care Coverage: A Discrete Choice Modelling Analysis." *Health Economics* 1131(2007): 1127–31.

Bridges, John F.P. et al. 2011. "Conjoint Analysis Applications in Health - A Checklist: A Report of the ISPOR Good Research Practices for Conjoint Analysis Task Force." *Value in Health* 14(4): 403–13. http://dx.doi.org/10.1016/j.jval.2010.11.013.

Brown, Kevin A. et al. 2021. "Association between Nursing Home Crowding and COVID-19 Infection and Mortality in Ontario, Canada." *JAMA Internal Medicine* 181(2): 229–36.

Brynaert Brennan et Associé.e.s. 2014. *Report on Service and Housing Needs of Francophone Seniors*. Erie St. Clair/South West.

Bueckert, Kate. 2021. "More Beds Coming as System Tackles 5-Year Wait Lists for Long-Term Care."

Campaign Research. 2020. *Home Care Ontario Study*.

Canada, Public Health Agency of. 2022. "COVID-19 Epidemiology Update."

Canada, Statistics. 2021. "Census Profile, 2021 Census of Population Profile Table." https://www12.statcan.gc.ca/census-recensement/2021/dp-pd/prof/details/page.cfm?Lang=E&SearchText=Ontario&DGUIDlist=2021A000235&GENDERlist=1,2,3&STATISTIClist=1&HEADERlist=0 (August 12, 2022).

Canadian Institute for Health Information. 2021. *The Impact of COVID-19 on Long-Term Care in Canada: Focus on the First 6 Months*. http://www.scie-socialcareonline.org.uk/the-impact-of-covid-19-on-long-term-care-in-canada-focus-on-the-first-6-months/r/a116f00000UuXxWAAV.

Capatina, Elena, Michael P. Keane, and Shiko Maruyama. 2018. "Health Shocks and the Evolution of Consumption and Income over the Life-Cycle." *SSRN Electronic Journal*.

Casey, Liam. 2021. "Ontario Home Care Sector Reports Mass Exodus of Healthcare Workers Moving to Hospitals, Long-Term Care Homes." *The Canadian Press*.

———. "'A Crisis for Home Care': Droves of Workers Leave for Hospitals, Nursing Homes." https://www.cbc.ca/news/canada/toronto/ont-home-care-1.6232042 (August 12, 2022).

Castañeda, Heide et al. 2015. "Immigration as a Social Determinant of Health." *Annual Review of Public Health* 36: 375–92.

Cervantes, Richard C., Karina A. Gattamorta, and Jodi Berger-Cardoso. 2019. "Examining Difference in Immigration Stress, Acculturation Stress and Mental Health Outcomes in Six Hispanic/Latino Nativity and Regional Groups." *Journal of Immigrant and Minority Health* 21(1): 14–20. http://dx.doi.org/10.1007/s10903-018-0714-9.

Chadwick, Kathryn A., and Patricia A. Collins. 2015. "Examining the Relationship between Social Support Availability, Urban Center Size, and Self-Perceived Mental Health of Recent Immigrants to Canada: A Mixed-Methods Analysis." *Social Science and Medicine* 128: 220–30. http://dx.doi.org/10.1016/j.socscimed.2015.01.036.

Chang, Cindy D. 2019. "Social Determinants of Health and Health Disparities Among Immigrants and Their Children." *Current Problems in Pediatric and Adolescent Health Care* 49(1): 23–30. https://doi.org/10.1016/j.cppeds.2018.11.009.

Charles, Kerwin Kofi. 1999. "Sickness in the Family: Health Shocks and Spousal Labor Supply."

Chen, Alice W., Arminée Kazanjian, and Hubert Wong. 2009. "Why Do Chinese Canadians Not Consult Mental Health Services: HealtH Status, Language or Culture?" *Transcultural Psychiatry* 46(4): 623–41.

Chester, Helen et al. 2018. "People with Dementia and Carer Preferences for Home Support Services in Early-Stage Dementia." *Aging and Mental Health* 22(2): 270–79. https://doi.org/10.1080/13607863.2016.1247424.

Chiswick, Barry R., Yew Liang Lee, and Paul W. Miller. 2008. "Immigrant Selection Systems and Immigrant Health." *Contemporary Economic Policy* 26(4): 555–78.

Chiu, Maria, Abigail Amartey, Xuesong Wang, and Paul Kurdyak. 2018. "Ethnic Differences in Mental Health Status and Service Utilization: A Population-Based Study in Ontario, Canada." *Canadian Journal of Psychiatry* 63(7): 481–91.

Choi, Sung. 2017. "Hospital Capital Investment during the Great Recession." *Inquiry (United States)* 54.

Choi, Sung W., Christal Ramos, Kyungha Kim, and Shahinshah Faisal Azim. 2019. "The Association of Racial and Ethnic Social Networks with Mental Health Service Utilization Across Minority Groups in the USA." *Journal of Racial and Ethnic Health Disparities* 6(4): 836–50.

Chow, Julian Chun Chung, Kim Jaffee, and Lonnie Snowden. 2003. "Racial/Ethnic Disparities in the Use of Mental Health Services in Poverty Areas." *American Journal of Public Health* 93(5): 792–97.

Chu, Leung Wing et al. 2014. "Community End-of-Life Care among Chinese Older Adults Living in Nursing Homes." *Geriatrics and Gerontology International* 14(2): 273–84.

Closing the Gap Healthcare Group Inc. 2020. "Home Care Costs in Ontario—A Complete Breakdown." https://www.closingthegap.ca/home-care-costs-in-ontario-a-complete-breakdown/.

Cloutier, Denise S. et al. 2019. "Long-Term Care Service Trajectories and Their Predictors for Persons Living With Dementia: Results From a Canadian Study." *Journal of Aging and Health* 31(1): 139–64.

Cohen, Sheldon, and Thomas Ashby Wills. 1985. "Stress, Social Support, and the Buffering Hypothesis." *Psychological Bulletin* 98(2): 310–57.

Colizzi, Marco, Antonio Lasalvia, and Mirella Ruggeri. 2020. "Prevention and Early Intervention in Youth Mental Health: Is It Time for a Multidisciplinary and Trans-Diagnostic Model for Care?" *International Journal of Mental Health Systems* 14(1): 1–14. https://doi.org/10.1186/s13033-020-00356-9.

Constant, Amelie F., Teresa García-Muñoz, Shoshana Neuman, and Tzahi Neuman. 2018. "A 'Healthy Immigrant Effect' or a 'Sick Immigrant Effect'? Selection and Policies Matter." *European Journal of Health Economics* 19(1): 103–21.

Copeland, William E., Lilly Shanahan, E. Jane Costello, and Adrian Angold. 2009. "Childhood and Adolescent Psychiatric Disorders as Predictors of Young Adult Disorders." *Archives of General Psychiatry* 66(7): 764–72.

Cost, Katherine Tombeau et al. 2022. "Mostly Worse, Occasionally Better: Impact of COVID-19 Pandemic on the Mental Health of Canadian Children and Adolescents." *European Child and Adolescent Psychiatry* 31(4): 671–84. https://doi.org/10.1007/s00787-021-01744-3.

Crossman, Eden, Feng Hou, and Garnett Picot. 2021. "Are the Gaps in Labour Market Outcomes between Immigrants and Their Canadian-Born Counterparts Starting to Close ?" *Statistics Canada* (36).

Currie, J, and BC Madrian. 1999. "Health, Health Insurance and the Labor Market." In *Handbook of Labor Economics*, eds. O Ashenfelter and D Card. Amsterdam, 3309–3407.

Cutrona, Carolyn E., Gail Wallace, and Kristin A. Wesner. 2006. "Neighborhood Characteristics and Depression an Examination of Stress Processes." *Current Directions in Psychological Science* 15(4): 188–92.

Dano, Anne Moller. 2005. "Road Injuries and Long-Run Effects on Income and Employment." *Health Economics* 14(9): 955–70.

Danso, Kofi. 2016. "Nativity and Health Disparities: Predictors of Immigrant Health." *Social Work in Public Health* 31(3): 175–87.

Das-Munshi, Jayati et al. 2019. "Ethnic Density and Other Neighbourhood Associations for Mortality in Severe Mental Illness: A Retrospective Cohort Study with Multi-Level

Analysis from an Urbanised and Ethnically Diverse Location in the UK." *The Lancet Psychiatry* 6(6): 506–17.

David Naylor, C., Andrew Boozary, and Owen Adams. 2020. "Canadian Federal-Provincial/Territorial Funding of Universal Health Care: Fraught History, Uncertain Future." *Cmaj* 192(45): E1408–12.

Delavande, Adeline, and Charles F Manski. 2015. "Using Elicited Choice Probabilities in Hypothetical Elections to Study Decisions to Vote." *Elect Stud*: 28–37.

Derose, Kathryn Pitkin, José J. Escarce, and Nicole Lurie. 2007. "Immigrants and Health Care: Sources of Vulnerability." *Health Affairs* 26(5): 1258–68.

Derr, Amelia S. 2009. "Mental Health Service Use Among Immigrants in the United States: A Systematic Review Dr." 6(2): 356–72.

Dhanaraj, Sowmya. 2016. "Economic Vulnerability to Health Shocks and Coping Strategies: Evidence from Andhra Pradesh, India." *Health Policy and Planning* 31(6): 749–58.

Disney, Lindsey. 2021. "The Impact of Employment on Immigrant Mental Health: Results from a National Survey." *Social work* 66(2): 93–100.

Dixon, Simon et al. 2015. "Assessing Patient Preferences for the Delivery of Different Community-Based Models of Care Using a Discrete Choice Experiment." *Health Expectations*.

Duncan, Laura et al. 2019. "The 2014 Ontario Child Health Study Emotional Behavioural Scales (OCHS-EBS) Part I: A Checklist for Dimensional Measurement of Selected DSM-5 Disorders." *Canadian Journal of Psychiatry* 64(6): 423–33.

Durbin, Anna et al. 2015a. "Examining the Relationship between Neighbourhood Deprivation and Mental Health Service Use of Immigrants in Ontario, Canada: A Cross-Sectional Study." *BMJ Open* 5(3).

———. 2015b. "Mental Health Service Use by Recent Immigrants from Different World Regions and by Non-Immigrants in Ontario, Canada: A Cross-Sectional Study." *BMC Health Services Research* 15(1). http://dx.doi.org/10.1186/s12913-015-0995-9.

Eccles, Jacquelynne S et al. 1993. "Development during Adolescence: The Impact of Stage-Environment Fit on Young Adolescents' Experiences in Schools and in Families." *American Psychologist* 48(2): 90–101.

Edwards, Ryan D., and Jennifer Roff. 2010. "Negative Effects of Paternal Age on Children's Neurocognitive Outcomes Can Be Explained by Maternal Education and Number of Siblings." *PLoS ONE* 5(9): 1–9.

Emerson, Scott D. et al. 2022. "Neighbourhood Context and Diagnosed Mental Health Conditions among Immigrant and Non-Immigrant Youth: A Population-Based Cohort Study in British Columbia, Canada." *Social Psychiatry and Psychiatric Epidemiology* (0123456789). https://doi.org/10.1007/s00127-022-02301-2.

Essue, BM et al. 2017. "Economic Burden of Chronic Ill Health and Injuries for Households in Low- and Middle-Income Countries." In *Disease Control Priorities: Improving Health and Reducing Poverty*, eds. DT Jamison et al. Washington.

Fadlon, Itzik, and Torben Heien Nielsen. 2021. "Family Labor Supply Responses to Severe Health Shocks: Evidence from Danish Administrative Records†." *American Economic Journal: Applied Economics* 13(3): 1–30.

Fan, Jonathan K. et al. 2018. "Labor Market and Health Trajectories during Periods of Economic Recession and Expansion in the United States, 1988–2011." *Scandinavian Journal of Work, Environment and Health* 44(6): 639–46.

Filion, Nicole, Andrew Fenelon, and Michel Boudreaux. 2018. “Immigration, Citizenship, and the Mental Health of Adolescents.” *PLoS ONE* 13(5): 1–12.

Finkelstein, Eric A., Marcel Bilger, Terry N. Flynn, and Chetna Malhotra. 2015. “Preferences for End-of-Life Care among Community-Dwelling Older Adults and Patients with Advanced Cancer: A Discrete Choice Experiment.” *Health Policy* 119(11): 1482–89. http://dx.doi.org/10.1016/j.healthpol.2015.09.001.

Fisher, Michael P., and Mika K. Hamer. 2020. “Qualitative Methods in Health Policy and Systems Research: A Framework for Study Planning.” *Qualitative Health Research* 30(12): 1899–1912.

Fletcher, Jason, and Katie M Jajtner. 2021. “Intergenerational Health Mobility: Magnitudes and Importance of Schools and Place.” *Health Economics* 30(7): 1648–67.

Forder, Julien, Katerina Gousia, and Eirini Christina Saloniki. 2019. “The Impact of Long-Term Care on Primary Care Doctor Consultations for People over 75 Years.” *European Journal of Health Economics* 20(3): 375–87. http://dx.doi.org/10.1007/s10198-018-0999-6.

Franco, Yujin, and Eun Young Choi. 2020. “The Relationship Between Immigrant Status and Undiagnosed Dementia: The Role of Limited English Proficiency.” *Journal of Immigrant and Minority Health* 22(5): 914–22. https://doi.org/10.1007/s10903-019-00963-w.

Frounfelker, Rochelle L et al. 2019. “Mental Health of Refugee Children and Youth: Epidemiology, Interventions, and Future Directions.” : 1–18.

Fu, Rong et al. 2019. “How Do Cardiovascular Diseases Harm Labor Force Participation? Evidence of Nationally Representative Survey Data from Japan, a Super-Aged Society.” *PLoS ONE* 14(7): 1–16.

Gagnon, Monica, Nisha Kansal, Ritika Goel, and Denise Gastaldo. 2021. “Immigration Status as the Foundational Determinant of Health for People Without Status in Canada: A Scoping Review.” *Journal of Immigrant and Minority Health* (0123456789). https://doi.org/10.1007/s10903-021-01273-w.

Gandhi, Sima et al. 2016a. “Mental Health Service Use among Children and Youth in Ontario: Population-Based Trends over Time.” *Canadian Journal of Psychiatry* 61(2): 119–24.

———. 2016b. “Mental Health Service Use among Children and Youth in Ontario: Population-Based Trends over Time.” *Canadian Journal of Psychiatry* 61(2): 119–24.

Garasia, Sophiya et al. “Health Outcomes, Health Services Utilization, and Costs Consequences of Medicare Uninsurance among Migrants in Canada: A Systematic Review.” *Submitted to Health Services Research*.

García-Gómez, Pilar. 2011. “Institutions, Health Shocks and Labour Market Outcomes across Europe.” *Journal of Health Economics* 30(1): 200–213.

García-Gómez, Pilar, Hans van Kippersluis, Owen O’Donnell, and Eddy van Doorslaer. 2013. “Long-Term and Spillover Effects of Health Shocks on Employment and Income.” *Journal of Human Resources* 48(4): 873–909.

Garland, Allan et al. 2019a. “Effects of Cardiovascular and Cerebrovascular Health Events on Work and Earnings: A Population-Based Retrospective Cohort Study.” *Annals of Internal Medicine* 191(1): E3–10.

———. 2019b. “Effects of Cardiovascular and Cerebrovascular Health Events on Work and Earnings: A Population-Based Retrospective Cohort Study.” *Annals of Internal Medicine* 191(1): E3–10.

Gatt, Justine M. et al. 2020. “Trauma, Resilience, and Mental Health in Migrant and Non-Migrant Youth: An International Cross-Sectional Study Across Six Countries.” *Frontiers in*

Psychiatry 10(March): 1–15.
Gentili, Elena, Giuliano Masiero, and Fabrizio Mazzonna. 2017. "The Role of Culture in Long-Term Care Arrangement Decisions." *Journal of Economic Behavior and Organization* 143: 186–200. https://doi.org/10.1016/j.jebo.2017.09.007.
George, M. A., and C. Bassani. 2016a. "The Health of Immigrant Children Who Live in Areas with High Immigrant Concentration." *Ethnicity and Health* 21(5): 426–38. http://dx.doi.org/10.1080/13557858.2015.1066762.
———. 2016b. "The Health of Immigrant Children Who Live in Areas with High Immigrant Concentration." *Ethnicity and Health* 21(5): 426–38. http://dx.doi.org/10.1080/13557858.2015.1066762.
George, Usha, Mary S. Thomson, Ferzana Chaze, and Sepali Guruge. 2015. "Immigrant Mental Health, a Public Health Issue: Looking Back and Moving Forward." *International Journal of Environmental Research and Public Health* 12(10): 13624–48.
Georgiades, Katholiki et al. 2019. "Six-Month Prevalence of Mental Disorders and Service Contacts among Children and Youth in Ontario: Evidence from the 2014 Ontario Child Health Study." *Canadian Journal of Psychiatry* 64(4): 246–55.
Georgiades, Katholiki, Michael H. Boyle, and Eric Duku. 2007. "Contextual Influences on Children's Mental Health and School Performance: The Moderating Effects of Family Immigrant Status." *Child Development* 78(5): 1572–91.
Georgiades, Katholiki, Michael H. Boyle, and Kelly A. Fife. 2013. "Emotional and Behavioral Problems Among Adolescent Students: The Role of Immigrant, Racial/Ethnic Congruence and Belongingness in Schools." *Journal of Youth and Adolescence* 42(9): 1473–92.
Gibbard, Robyn. 2017. "Sizing up the Challenge: Meeting the Demand for Long-Term Care in Canada." *The Conference Board of Canada* (November): 1–48. https://www.cma.ca/sites/default/files/2018-11/9228_Meeting the Demand for Long-Term Care Beds_RPT.pdf.
Government of Canada. 2014. "Government of Canada — Action for Seniors Report." https://www.canada.ca/en/employment-social-development/programs/seniors-action-report.html (August 12, 2022).
———. 2019. "Rural and Northern Immigration Pilot: About the Pilot - Canada.Ca." https://www.canada.ca/en/immigration-refugees-citizenship/services/immigrate-canada/rural-northern-immigration-pilot.html (January 15, 2020).
———. 2022a. "Atlantic Immigration Program." https://www.canada.ca/en/immigration-refugees-citizenship/services/immigrate-canada/atlantic-immigration.html (August 27, 2022).
———. 2022b. "Interim Federal Health Program: What Is Covered." https://www.canada.ca/en/immigration-refugees-citizenship/services/refugees/help-within-canada/health-care/interim-federal-health-program/coverage-summary.html (September 28, 2022).
Government of Ontario. 2022. "Protecting People's Health." https://budget.ontario.ca/2021/health.html (August 12, 2022).
Grignon, Michel, and Byron G. Spencer. 2018. "The Funding of Long-Term Care in Canada: What Do We Know, What Should We Know." *Canadian Journal on Aging* 37(2): 110–20.
Guan, Alice et al. 2020. "Neighborhood Ethnic Composition and Self-Rated Health Among Chinese and Vietnamese American Immigrants." *Journal of Immigrant and Minority Health* (0123456789). https://doi.org/10.1007/s10903-020-01041-2.

Gupta, R, and K Vijayan. 2020. "Analysis of Caregiver Burden in South Asian Families in the Dallas-Fort Worth Metropolitan Area : Insights for Social Practice Author (s): Rashmi Gupta and Vijayan K . Pillai Source : Journal of Applied Sociology , Vol . 22 , No . 2 , Special Joint Issu." 22(2): 35–54.

Gustafsson-Wright, Emily, Wendy Janssens, and Jacques Van Der Gaag. 2011. "The Inequitable Impact of Health Shocks on the Uninsured in Namibia." *Health Policy and Planning* 26(2): 142–56.

H. Krueger & Associates Inc. 2015. *Estimated Prevalence of Stroke Survivors with Disability in Canada*. https://www.canadianstroke.ca/sites/default/files/resources/Stroke-Prevalence-Report-2015-02-25.pdf.

Haan, Peter, and Michal Myck. 2009. "Dynamics of Health and Labor Market Risks." *Journal of Health Economics* 28(6): 1116–25.

Halla, Martin, and Martina Zweimüller. 2013. "The Effect of Health on Earnings: Quasi-Experimental Evidence from Commuting Accidents." *Labour Economics* 24: 23–38.

Halsall, Tanya et al. 2019. "Trends in Mental Health System Transformation: Integrating Youth Services within the Canadian Context." *Healthcare Management Forum* 32(2): 51–55.

Hansen, Marissa C., Dahlia Fuentes, and Maria P. Aranda. 2018. "Re-Engagement into Care: The Role of Social Support on Service Use for Recurrent Episodes of Mental Health Distress Among Primary Care Patients." *Journal of Behavioral Health Services and Research* 45(1): 90–104.

Hansson, Emily K., Andrew Tuck, Steve Lurie, and Kwame McKenzie. 2012. "Rates of Mental Illness and Suicidality in Immigrant, Refugee, Ethnocultural, and Racialized Groups in Canada: A Review of the Literature." *Canadian Journal of Psychiatry* 57(2): 111–21.

Health Quality Ontario. 2012. *Quality Improvement Plans in Long-Term Care: Lessons Learned*.

Heart and Stroke Foundation. "Saving Lives | Heart and Stroke Foundation." https://www.heartandstroke.ca/what-we-do/our-impact/saving-lives (June 7, 2022).

Heinesen, Eskil, Susumu Imai, and Shiko Maruyama. 2018. "Employment, Job Skills and Occupational Mobility of Cancer Survivors." *Journal of Health Economics* 58: 151–75. https://doi.org/10.1016/j.jhealeco.2018.01.006.

Henry, Hani M. et al. 2009. "Immigrants' Continuing Bonds with Their Native Culture: AssimilatioN Analysis of Three Interviews." *Transcultural Psychiatry* 46(2): 257–84.

Hensher, David A, John M. Rose, and William H. Greene. 2005. *Applied Choice Analysis A Primer*. Cambridge: Cambridge University Press.

Home Care Ontario. "Home Care & Me | Home Care Ontario." https://www.homecareontario.ca/home-care-services/overview (February 1, 2020).

Houle, René, and Hélène Maheux. 2016. "150 Years of Immigration in Canada." *Statistics Canada*. https://www150.statcan.gc.ca/n1/pub/11-630-x/11-630-x2016006-eng.htm.

Howard, George et al. 1985. "Factors Influencing Return to Work Following Cerebral Infarction." *JAMA: The Journal of the American Medical Association* 253(2): 226–32.

Hurlburt, Michael S. et al. 2004. "Contextual Predictors of Mental Health Service Use among Children Open to Child Welfare." *Archives of General Psychiatry* 61(12): 1217–24.

Hutchison, Brian, Jean-frédéric Levesque, Erin Strumpf, and Natalie Coyle. 2015. "Primary Health Care in Canada : Systems in Motion Source : The Milbank Quarterly , Vol . 89 , No . 2 (June 2011), Pp . 256-288 Published by : Wiley on Behalf of Milbank Memorial Fund Stable URL : Http://Www.Jstor.Org/Stable/23036216 Your Use of the JSTO." 89(2): 256–88.

Imbens, Guido W. 2015. "Matching Methods in Practice: Three Examples." *Journal of Human Resources* 50(2): 373–419.

IOM UN Migration. 2020. *World Migration Report 2020*. Geneva.

Islam, A, and J Parasnis. 2017. "Heterogeneous Effects of Health Shocks in Developed Countries: Evidence from Australia." *Monash University Department of Economics*.

Islam, Farah. 2015. "Immigrating to Canada during Early Childhood Associated with Increased Risk for Mood Disorders." *Community Mental Health Journal* 51(6): 723–32. http://dx.doi.org/10.1007/s10597-015-9851-y.

Janssen, Ellen M., Deborah A. Marshall, A. Brett Hauber, and John F.P. Bridges. 2017. "Improving the Quality of Discrete-Choice Experiments in Health: How Can We Assess Validity and Reliability?" *Expert Review of Pharmacoeconomics and Outcomes Research*.

Jeon, Sung Hee et al. 2020. "Effects of Cardiovascular Health Shocks on Spouses' Work and Earnings: A National Study." *Medical Care* 58(2): 128–36.

Jeong, Ahwon et al. 2020. "Health Outcomes of Immigrants in Nursing Homes: A Population-Based Retrospective Cohort Study in Ontario, Canada." *Journal of the American Medical Directors Association* 21(6): 740-746.e5. https://doi.org/10.1016/j.jamda.2020.03.001.

Johnson, F. Reed et al. 2013. "Constructing Experimental Designs for Discrete-Choice Experiments: Report of the ISPOR Conjoint Analysis Experimental Design Good Research Practices Task Force." *Value in Health* 16(1): 3–13.

Johnson, R, and B Orme. 2003. "Getting the Most from CBC." *Sequim: Sawtooth Software Research Paper Series*.

Johnson, Reed et al. 2013. "Constructing Experimental Designs for Discrete-Choice Experiments: Report of the ISPOR Conjoint Analysis Experimental Design Good Research Practices Task Force." *Value in Health*.

Johnson, Shanthi et al. 2018. "No Place Like Home: A Systematic Review of Home Care for Older Adults in Canada." *Canadian Journal on Aging* 37(4): 400–419.

Jones, Aaron et al. 2021. "Impact of the COVID-19 Pandemic on Home Care Services Among Community-Dwelling Adults With Dementia." *Journal of the American Medical Directors Association* 22(11): 2258-2262.e1. https://doi.org/10.1016/j.jamda.2021.08.031.

Jones, Andrew M., Nigel Rice, and Francesca Zantomio. 2020. "Acute Health Shocks and Labour Market Outcomes: Evidence from the Post Crash Era." *Economics and Human Biology* 36(2020): 100811. https://doi.org/10.1016/j.ehb.2019.100811.

Kaambwa, Billingsley et al. 2015. "Investigating Consumers' and Informal Carers' Views and Preferences for Consumer Directed Care: A Discrete Choice Experiment." *Social Science and Medicine* 140: 81–94. http://dx.doi.org/10.1016/j.socscimed.2015.06.034.

Kaida, Lisa, and Monica Boyd. 2011. "Poverty Variations among the Elderly: The Roles of Income Security Policies and Family Co-Residence." *Canadian Journal on Aging* 30(1): 83–100.

Kampanellou, Eleni, Helen Chester, Linda Davies, Sue Davies, Clarissa Giebel, Jane Hughes, David Challis, Paul Clarkson, et al. 2019. "Carer Preferences for Home Support Services in Later Stage Dementia." *Aging & mental health* 23(1): 60–68. http://ovidsp.ovid.com/ovidweb.cgi?T=JS&PAGE=reference&D=prem&NEWS=N&AN=29090948.

———. 2019. "Carer Preferences for Home Support Services in Later Stage Dementia." *Aging and Mental Health* 23(1): 60–68. https://doi.org/10.1080/13607863.2017.1394441.

Ketchen, Sandra. 2021. "Ontario Seniors and Patients Will Pay the Price of the Developing

Home-Care Crisis." *Toronto News*.
Kim, Daniel. 2008. "Blues from the Neighborhood? Neighborhood Characteristics and Depression." *Epidemiologic Reviews* 30(1): 101–17.
Kim, Sophia Bohun, and Yeonjung Jane Lee. 2021. "Factors Associated with Mental Health Help-Seeking Among Asian Americans: A Systematic Review." *Journal of Racial and Ethnic Health Disparities*.
Kimber, Melissa et al. 2015. "Adolescent Body Image Distortion: A Consideration of Immigrant Generational Status, Immigrant Concentration, Sex and Body Dissatisfaction." *Journal of Youth and Adolescence* 44(11): 2154–71.
Koehn, Sharon. 2009. "Negotiating Candidacy: Ethnic Minority Seniors' Access to Care." *Ageing and Society* 29(4): 585–608.
Kovaleva, Mariya, Abigail Jones, Cathy A. Maxwell, and Elizabeth M. Long. 2021. "Immigrants and Dementia: Literature Update." *Geriatric Nursing* 42(5): 1218–21. https://doi.org/10.1016/j.gerinurse.2021.04.019.
Kuluski, Kerry, A. Paul Williams, Whitney Berta, and Audrey Laporte. 2012. "Home Care or Long-Term Care? Setting the Balance of Care in Urban and Rural Northwestern Ontario, Canada." *Health and Social Care in the Community* 20(4): 438–48.
Kwak, Kyunghwa. 2016. "An Evaluation of the Healthy Immigrant Effect with Adolescents in Canada: Examinations of Gender and Length of Residence." *Social Science and Medicine* 157: 87–95. http://dx.doi.org/10.1016/j.socscimed.2016.03.017.
Lagarde, Mylene, and Duane Blaauw. 2009. "A Review of the Application and Contribution of Discrete Choice Experiments to Inform Human Resources Policy Interventions." *Human Resources for Health* 7: 1–10.
Laher, Nazeefah. 2017. "Diversity, Aging, and Intersectionality in Ontario Home Care." (May). www.wellesleyinstitute.com.
Lai, Daniel W.L., and Shireen Surood. 2010. "Types and Factor Structure of Barriers to Utilization of Health Services among Aging South Asians in Calgary, Canada." *Canadian Journal on Aging* 29(2): 249–58.
Lancaster, K. 1966. "A New Approach to Consumer Theory Author (s): Kelvin J . Lancaster Reviewed Work (s): Source : Journal of Political Economy , Vol . 74 , No . 2 (Apr ., 1966), Pp . 132-157 Published by : The University of Chicago Press Stable URL : Http://Www.Jstor." 74(2): 132–57.
Lancsar, Emily, Denzil G. Fiebig, and Arne Risa Hole. 2017. "Discrete Choice Experiments: A Guide to Model Specification, Estimation and Software." *PharmacoEconomics*.
Lanoix, Monique. 2017. "No Longer Home Alone? Home Care and the Canada Health Act." *Health Care Analysis* 25(2): 168–89.
Lapointe-Shaw, Lauren et al. 2021. "Homebound Status among Older Adult Home Care Recipients in Ontario, Canada." *Journal of the American Geriatrics Society* (March): 1–11.
Laroche, Mireille. 2000. "Health Status and Health Services Utilization of Canada's Immigrant and Non-Immigrant Populations." *Canadian Public Policy* 26(1): 51–75.
Legislative Assembly of Ontario. 2022. "Bill 7, More Beds, Better Care Act, 2022."
Lehnert, T. et al. 2018. "Preferences for Home- and Community-Based Long-Term Care Services in Germany: A Discrete Choice Experiment." *European Journal of Health Economics*.
Lehnert, T, M Heuchert, K Hussain, and HK Konig. 2018. "Stated Preferences for Long-Term Care: A Literature Review." *Ageing and Society*.

Lehnert, Thomas, Max Heuchert, Katharina Hussain, and Hans-Helmut König. 2019. "Stated Preferences for Long-Term Care: A Literature Review."

Lenhart, Otto. 2019. "The Effects of Health Shocks on Labor Market Outcomes: Evidence from UK Panel Data." *European Journal of Health Economics* 20(1): 83–98.

Lin, Elizabeth et al. 1996. "The Use of Mental Health Services in Ontario: Epidemiologic Findings." *Canadian Journal of Psychiatry* 41(9): 572–77.

Liu, Xing. 2016. *Applied Ordinal Logistic Regression Using Stata*. Thousand Oaks: Sage.

Locker, David, John Maggirias, and Carlos Quiñonez. 2011. "Income, Dental Insurance Coverage, and Financial Barriers to Dental Care among Canadian Adults." *Journal of Public Health Dentistry* 71(4): 327–34.

Louviere, Jordan J, David A Hensher, and Joffre D Swait. 2000. *Stated Choice Methods Analysis and Application*. Cambridge: University Press.

Luce, Mary F, John W Payne, and James R Bettman. 1999. "Emotional Trade-off Difficulty and Choice." *Journal of Marketing Research* 36(2): 143–59.

Ludwig, Jens, Greg Duncan, Lawrence K Atz, and Lisa Sanbonmatsu. 2014. "Moving to More Affluent Neighborhoods." : 1–4. macfound.org/HousingMatters.

Lundborg, Petter, NilssonMartin, and Johan Vikstrom. 2015. "Heterogeneity in the Impact of Health Shocks on Labour Outcomes: Evidence from Swedish Workers." *Oxford Economic Papers* 67(3): 715–39.

Ma, Xin. 2002. "The First Ten Years in Canada: A Multi-Level Assessment of Behavioural and Emotional Problems of Immigrant Children." *Canadian Public Policy* 28(3): 395–418.

Mackenzie, Kwame, Branka Agic, Andrew Tuck, and Michael Antwi. 2016. *The Case for Diversity : Building the Case to Improve Mental Health Services for Immigrant, Refugee, Ethno-Cultural and Racialized Populations : Report to the Mental Health Commission of Canada*. https://www.mentalhealthcommission.ca/sites/default/files/2016-10/case_for_diversity_oct_2016_eng.pdf.

Magnusson, D, and H Stattin. 1998. "Person-Context Interaction Theories." In *Handbook of Child Psychology: Vol. 1. Theoretical Models of Human Development*, New York: Wiley, 685–759.

De Maio, Fernando G. 2010. "Immigration as Pathogenic: A Systematic Review of the Health of Immigrants to Canada." *International Journal for Equity in Health* 9(1): 27. http://www.equityhealthj.com/content/9/1/27.

Manski, Charles F. 2010. "Measuring Expectations." *Society* 28(5): 244–57.

Marchildon, Gregory, and Livio Di Matteo. 2011. "Health Care Cost Drivers : The Facts, Spending and Workforce." *Canadian Institute for Health Information* (October 2011): 1–33.

Markides, Kyriakos S., and Sunshine Rote. 2019. "The Healthy Immigrant Effect and Aging in the United States and Other Western Countries." *Gerontologist* 59(2): 205–14.

Marmot, MG, AM Adelstein, and L Bulusu. 1984. "Lessons from the Study of Immigrant Mor-Tality." *The Lancet* 1(8392): 1455–57.

Martin, Danielle et al. 2018. "Canada's Universal Health-Care System: Achieving Its Potential." *The Lancet* 391(10131): 1718–35.

Martinez, William, and Antonio J. Polo. 2018. "Neighborhood Context, Family Cultural Values, and Latinx Youth Externalizing Problems." *Journal of Youth and Adolescence* 47(11): 2440–52. http://dx.doi.org/10.1007/s10964-018-0914-6.

Masuda, Akihiko, Page L. Anderson, and Joshua Edmonds. 2012. "Help-Seeking Attitudes,

Mental Health Stigma, and Self-Concealment Among African American College Students." *Journal of Black Studies* 43(7): 773–86.

Maulik, Pallab, William Eaton, and Catherine Bradshaw. 2009. "The Role of Social Network and Support in Mental Health Service Use: Findings From the Baltimore ECA Study." *Psychiatric Services* 60(9).

McKenzie, Kwame. 2019. "Improving Mental Health Services for Immigrant, Racialized, Ethno-Cultural and Refugee Groups." *Healthcare Papers* 18(2): 4–9.

McLeod Macey, Jennifer, and Grace Tong. 2017. "Children and Youth Mental Health Survey: Getting Help in Ontario." : 1–23. https://www.ipsos.com/en-ca/news-polls/CMHO-children-and-youth-mental-health-ontario.

Mehmetoglu, Mehmet, and Tor Georg Jakobsen. 2002. "Multilevel Analysis." In *Applied Statistics Using Stata - A Guide for the Social Sciences*, London: SAGE Publications Ltd (E-mail: info@sagepub.co.uk), 195–224.

Mendicino, Marco E.L. 2020. *2020 Annual Report to Parliament on Immigration*. Ottawa, ON.

Menezes, N. M., K. Georgiades, and M. H. Boyle. 2011. "The Influence of Immigrant Status and Concentration on Psychiatric Disorder in Canada: A Multi-Level Analysis." *Psychological Medicine* 41(10): 2221–31. https://www.cambridge.org/core/product/identifier/S0033291711000213/type/journal_article (January 15, 2020).

Mensah, George A. et al. 2017. "Decline in Cardiovascular Mortality: Possible Causes and Implications." *Circulation Research* 120(2): 366–80.

Mentzakis, Emmanouil, Manuel García-Goñi, Ana Rita Sequeira, and Francesco Paolucci. 2019. "Equity and Efficiency Priorities within the Spanish Health System: A Discrete Choice Experiment Eliciting Stakeholders Preferences." *Health Policy and Technology* 8(1): 30–41. https://doi.org/10.1016/j.hlpt.2019.01.003.

Min, Jong W., and Concepcion Barrio. 2009. "Cultural Values and Caregiver Preference for Mexican-American and Non-Latino White Elders." *Journal of Cross-Cultural Gerontology* 24(3): 225–39.

Ministry of Health and Long-Term Care. 2019. "Become an Ontario Health Team - Health Care Professionals - MOHLTC." http://health.gov.on.ca/en/pro/programs/connectedcare/oht/default.aspx LB - UQzQ (December 3, 2020).

Mittmann, Nicole et al. 2012. "Impact of Disability Status on Ischemic Stroke Costs in Canada in the First Year." *Can J Neurol Sci* 39(6): 793–800.

Morassaei, Sara et al. 2022. "The Role of Immigrant Admission Classes on the Health and Well-Being of Immigrants and Refugees in Canada: A Scoping Review." *Journal of Immigrant and Minority Health* (0123456789). https://doi.org/10.1007/s10903-022-01352-6.

Morgan M. Rogers-Carter1 2, Juan A Varela1 2 Katherine B Gribbons1 Anne F Pierce1 Morgan T McGoey1 Maureen Ritchey1, and John P Christianson1. 2017. "Health Impacts of the Great Recession: A Critical Review." *Physiology & behavior* 176(12): 139–48.

Moullan, Yasser, and Florence Jusot. 2014. "Why Is the 'healthy Immigrant Effect' Different between European Countries?" *European Journal of Public Health* 24(SUPPL.1): 80–86.

Mueller, Richard E, and N T Khuong Truong. 2022. "Wage and Basic Skills Inequality between Immigrants by Immigration Admission Categories and Canadian Non-Immigrants." *Empirical Economics* 62(4): 1833–84. http://libaccess.mcmaster.ca/login?url=https://search.ebscohost.com/login.aspx?direct=true

&db=eoh&AN=1956049&site=ehost-live&scope=site.
Munroe-Blum, Heather, Michael H. Boyle, David R. Offord, and Nicholas Kates. 1989. "IMMIGRANT CHILDREN: Psychiatric Disorder, School Performance, and Service Utilization." *American Journal of Orthopsychiatry* 59(4): 510–19.
Nascimento, Lucas R. et al. 2021. "Predictors of Return to Work after Stroke: A Prospective, Observational Cohort Study with 6 Months Follow-Up." *Disability and Rehabilitation* 43(4): 525–29.
Netten, A. et al. 2012. "Outcomes of Social Care for Adults: Developing a Preference-Weighted Measure." *Health Technology Assessment* 16(16): 1–165.
Ng, Edward. 2020. "COVID-19 Deaths among Immigrants: Evidence from the Early Months of the Pandemic." *Statistics Canada* (45280001): 1–9.
Ng, Edward, Kevin Pottie, and Denise Spitzer. 2011. "Official Language Proficiency and Selfreported Health among Immigrants to Canada." *Health Reports* 22(4).
Nieboer, Anna P., Xander Koolman, and Elly A. Stolk. 2010. "Preferences for Long-Term Care Services: Willingness to Pay Estimates Derived from a Discrete Choice Experiment." *Social Science and Medicine*.
O'Neill, Braden et al. 2022. "Socioeconomic and Immigration Status and COVID-19 Testing in Toronto, Ontario: Retrospective Cross-Sectional Study." *BMC Public Health* 22(1): 1–9. https://doi.org/10.1186/s12889-022-13388-2.
Ohle, Robert, Helena Bleeker, Krishan Yadav, and Jeffrey J. Perry. 2018. "The Immigrant Effect: Factors Impacting Use of Primary and Emergency Department Care - A Canadian Population Cross-Sectional Study." *Canadian Journal of Emergency Medicine* 20(2): 260–65.
Ojeda, Victoria D, Richard G Frank, Thomas G McGuire, and Todd P Gilmer. 2010. "Mental Illness, Nativity, Gender, and Labor Supply." 19: 396–421.
Okrainec, Karen, Chaim M. Bell, Simon Hollands, and Gillian L. Booth. 2015. "Risk of Cardiovascular Events and Mortality among a Population-Based Cohort of Immigrants and Long-Term Residents with Diabetes: Are All Immigrants Healthier and If so, for How Long?" *American Heart Journal* 170(1): 123–32. http://dx.doi.org/10.1016/j.ahj.2015.04.009.
Oldenburger, David et al. 2022. "COVID - 19 Issues in Long-Term Care in Ontario : A Document Analysis Enjeux Liés à La COVID-19 Dans Les Soins de Longue Durée En Ontario : Une Analyse de Documents." 17: 53–65.
Ontario's Regulatory Registry. 2022. *Fixing Long-Term Care Act, 2021*. Toronto, Canada. https://www.ontario.ca/laws/statute/21f39.
Ontario, Home Care. 2020. "New Poll Shows Over 90% of Ontario Seniors Want to Live at Home as They Age, and Want Government to Invest to Help Them Do It." https://www.newswire.ca/news-releases/new-poll-shows-over-90-of-ontario-seniors-want-to-live-at-home-as-they-age-and-want-government-to-invest-to-help-them-do-it-857341964.html.
———. 2021. "97 Per Cent of Ontario Seniors Want Increased Home Care Funding: Poll." https://www.newswire.ca/news-releases/97-per-cent-of-ontario-seniors-want-increased-home-care-funding-poll-805034645.html (March 3, 2022).
Ontario Long-term Care Association. 2021. "The Role of Long-Term Care." https://www.oltca.com/oltca/OLTCA/Public/LongTermCare/FactsFigures.aspx (August 12, 2022).

Ontario Long Term Care Association. 2019. "Facts and Figures." https://www.oltca.com/oltca/OLTCA/Public/LongTermCare/FactsFigures.aspx (December 3, 2020).

Ontario Ministry of Finance. 2019. "Ontario Population Projections, 2018-2046." : 2018–46.

Ontario Ministry of Health. 2021. "Ontario Welcomes New Long-Term Care Development Proposals." https://news.ontario.ca/en/release/1001009/ontario-welcomes-new-long-term-care-development-proposals.

———. 2022. "Long-Term Care Accommodation Costs and Subsidy."

———. *Ontario Health Teams: Guidance for Health Care Providers and Organizations*.

Osler, Merete, Solvej Mårtensson, Eva Prescott, and Kathrine Carlsen. 2014. "Impact of Gender, Co-Morbidity and Social Factors on Labour Market Affiliation after First Admission for Acute Coronary Syndrome. A Cohort Study of Danish Patients 2001-2009." *PLoS ONE* 9(1).

Patel, Asiya et al. 2019. "Double Burden of Rural Migration in Canada? Considering the Social Determinants of Health Related to Immigrant Settlement Outside the Cosmopolis." *International Journal of Environmental Research and Public Health* 16(5).

Patterson, Beth, Hmwe Hmwe Kyu, and Katholiki Georgiades. 2013. "Age at Immigration to Canada and the Occurrence of Mood, Anxiety, and Substance Use Disorders." *Canadian Journal of Psychiatry* 58(4): 210–17.

Pelley, Lauren. 2022. "Communities with Low Incomes, Immigrants, Essential Workers Hardest Hit by COVID-19: Study." *CBC News*.

Phillips, Susan P., and Janelle Yu. 2021. "Is Anxiety/Depression Increasing among 5-25 Year-Olds? A Cross-Sectional Prevalence Study in Ontario, Canada, 1997-2017." *Journal of Affective Disorders* 282(November 2020): 141–46. https://doi.org/10.1016/j.jad.2020.12.178.

Pickett, Kate E., and Richard G. Wilkinson. 2008. "People like Us: Ethnic Group Density Effects on Health." *Ethnicity and Health* 13(4): 321–34.

Pignone, Michael P. et al. 2014. "Using a Discrete Choice Experiment to Inform the Design of Programs to Promote Colon Cancer Screening for Vulnerable Populations in North Carolina." *BMC Health Services Research* 14(1): 1–9.

Pinchas-Mizrachi, Ronit, Yaakov Naparstek, Ronit Nirel, and Ehud Kukia. 2020. "The 'Sick Immigrant' and 'Healthy Immigrant' Phenomenon among Jews Migrating from the USSR to Israel." *SSM - Population Health* 12: 100694. https://doi.org/10.1016/j.ssmph.2020.100694.

Pottie, Kevin et al. 2015. "Do First Generation Immigrant Adolescents Face Higher Rates of Bullying, Violence and Suicidal Behaviours Than Do Third Generation and Native Born?" *Journal of Immigrant and Minority Health* 17(5): 1557–66. http://dx.doi.org/10.1007/s10903-014-0108-6.

Puyat, Joseph H. 2013. "Is the Influence of Social Support on Mental Health the Same for Immigrants and Non-Immigrants?" *Journal of Immigrant and Minority Health* 15(3): 598–605.

Quach, Bradley I. et al. 2021. "Comparison of End-of-Life Care between Recent Immigrants and Long-Standing Residents in Ontario, Canada." *JAMA Network Open* 4(11): 1–13.

Quaife, Matthew, Fern Terris-Prestholt, Gian Luca Di Tanna, and Peter Vickerman. 2018. "How Well Do Discrete Choice Experiments Predict Health Choices? A Systematic Review and Meta-Analysis of External Validity." *European Journal of Health Economics* 19(8): 1053–

66. https://doi.org/10.1007/s10198-018-0954-6.
Qureshi, Danial et al. 2021. "Describing Differences Among Recent Immigrants and Long-Standing Residents Waiting for Long-Term Care: A Population-Based Retrospective Cohort Study." *Journal of the American Medical Directors Association* 22(3): 648–55. https://doi.org/10.1016/j.jamda.2020.07.018.
Racine, Nicole et al. 2021. "Global Prevalence of Depressive and Anxiety Symptoms in Children and Adolescents during COVID-19: A Meta-Analysis." *JAMA Pediatrics* 175(11): 1142–50.
Raudenbush, S.W., and A.S. Bryk. 2002. *Hierarchial Linear Models: Applications and Data Analysis Methods (2nd Ed.)*. Thousand Oaks: Sage.
Ridde, Valéry et al. 2020. "Unmet Healthcare Needs among Migrants without Medical Insurance in Montreal, Canada." *Global Public Health* 15(11): 1603–16.
Roberts, Tessa et al. 2018. "Factors Associated with Health Service Utilisation for Common Mental Disorders: A Systematic Review." *BMC Psychiatry* 18(1): 1–19.
Robinson, Stephanie M. et al. 2015. "Home, Please: A Conjoint Analysis of Patient Preferences after a Bad Hip Fracture." *Geriatrics and Gerontology International* 15(10): 1165–70.
Rogers, Wendy A., Widya A. Ramadhani, and Maurita T. Harris. 2020. "Defining Aging in Place: The Intersectionality of Space, Person, and Time." *Innovation in Aging* 4(4): 1–11.
Rosenberg, Julia et al. 2020. "Disparities in Mental and Behavioral Health Treatment for Children and Youth in Immigrant Families." *Academic Pediatrics* 20(8): 1148–56. https://doi.org/10.1016/j.acap.2020.06.013.
Ross, F, RE Mueller, and Arthur Sweetman. 2016. "The Cultural Determinants of Access to Post-Secondary (Higher) Education in Canada: Empirical Evidence and Policy Implications." In *Access and Expansion Post-Massification: Opportunities and Barriers to Further Growth in Higher Education Participation*, eds. BWA JongBloed and H Vossensteyn. New York: Routledge, 150–78.
Rousseau, Cécile, and Rochelle L. Frounfelker. 2019. "Mental Health Needs and Services for Migrants: An Overview for Primary Care Providers." *Journal of Travel Medicine* 26(2): 1–8.
Rousseau, Cécile, Ghayda Hassan, Toby Measham, and Myrna Lashley. 2008. "Prevalence and Correlates of Conduct Disorder and Problem Behavior in Caribbean and Filipino Immigrant Adolescents." *European Child and Adolescent Psychiatry* 17(5): 264–73.
Runnels, Vivian. 2017. *Understanding Immigrant Seniors' Needs and Priorities for Health Care*.
Salam, Zoha et al. 2022. "Systemic and Individual Factors That Shape Mental Health Service Usage Among Visible Minority Immigrants and Refugees in Canada: A Scoping Review." *Administration and Policy in Mental Health and Mental Health Services Research* (0123456789). https://doi.org/10.1007/s10488-021-01183-x.
Salloum, Ramzi G., Elizabeth A. Shenkman, Jordan J. Louviere, and David A. Chambers. 2017. "Application of Discrete Choice Experiments to Enhance Stakeholder Engagement as a Strategy for Advancing Implementation: A Systematic Review." *Implementation Science* 12(1): 1–12.
Samuelson-Kiraly, Claire et al. 2020. "Access and Quality of Health Care in Canada: Insights from 1998 to the Present." *Healthcare Management Forum* 33(6): 253–58.
Sandelowski, M. 2000. "Focus on Research Methods: Whatever Happened to Qualitative Description?" *Research in Nursing and Health* 23(4): 334–40.
Sarría-Santamera, Antonio, Ana Isabel Hijas-Gómez, Rocío Carmona, and Luís Andrés Gimeno-

Feliú. 2016. “A Systematic Review of the Use of Health Services by Immigrants and Native Populations.” *Public Health Reviews* 37(1). http://dx.doi.org/10.1186/s40985-016-0042-3.

Saunders, Natasha Ruth, Michael Lebenbaum, et al. 2018. “Trends in Mental Health Service Utilisation in Immigrant Youth in Ontario, Canada, 1996-2012: A Population-Based Longitudinal Cohort Study.” *BMJ open* 8(9).

Saunders, Natasha Ruth, Peter J. Gill, et al. 2018. “Use of the Emergency Department as a First Point of Contact for Mental Health Care by Immigrant Youth in Canada: A Population-Based Study.” *Cmaj* 190(40): E1183–91.

Saunders, Natasha Ruth et al. 2022. “Changes in Hospital-Based Care Seeking for Acute Mental Health Concerns among Children and Adolescents during the COVID-19 Pandemic in Ontario, Canada, Through September 2021.” *JAMA Network Open* 5(7): E2220553.

Savaş, Özge et al. 2021. “All Immigrants Are Not Alike : Intersectionality Matters in Views of Immigrant Groups Non-Technical Summary An Intersectional Perspective on Immigrant Groups.”

Sawamura, Kanae, Hiroshi Sano, and Miharu Nakanishi. 2015. “Japanese Public Long-Term Care Insured: Preferences for Future Long-Term Care Facilities, Including Relocation, Waiting Times, and Individualized Care.” *Journal of the American Medical Directors Association* 16(4): 350.e9-350.e20. http://dx.doi.org/10.1016/j.jamda.2015.01.082.

Sellström, Eva, and Sven Bremberg. 2006. “The Significance of Neighbourhood Context to Child and Adolescent Health and Well-Being: A Systematic Review of Multilevel Studies.” *Scandinavian journal of public health* 34(5): 544–54. http://www.ncbi.nlm.nih.gov/pubmed/16990166 (January 14, 2020).

Sheehan, David V. et al. 2010. “Reliability and Validity of the Mini International Neuropsychiatric Interview for Children and Adolescents (MINI-KID).” *Journal of Clinical Psychiatry* 71(3): 313–26.

Shields, Margot et al. 2021. “Symptoms of Major Depressive Disorder during the Covid-19 Pandemic: Results from a Representative Sample of the Canadian Population.” *Health Promotion and Chronic Disease Prevention in Canada* 41(11): 340–58.

Shim, R.S. et al. 2009. “Race-Ethnicity as a Predictor of Attitudes Toward Mental Health Treatment Seeking.” *Psychiatr Serv.* 60(10): 1336–41. file:///C:/Users/Carla Carolina/Desktop/Artigos para acrescentar na qualificação/The impact of birth weight on cardiovascular disease risk in the.pdf.

Shortt, Janet. 2014. “A Historical Perspective of the Effect of the Great Recession on Hospitals.” *AORN Journal* 100(2): 177–87.

Smith, James P. 1999. “Healthy Bodies and Thick Wallets: The Dual Relation between Health and Economic Status.” *Journal of Economic Perspectives* 13(2): 145–66.

Sohail, Qazi Zain et al. 2015. “The Risk of Ischemic Heart Disease and Stroke Among Immigrant Populations: A Systematic Review.” *Canadian Journal of Cardiology* 31(9): 1160–68. http://dx.doi.org/10.1016/j.cjca.2015.04.027.

Soril, Lesley JJ, Ted Adams, and Madeline Phipps-Taylor. 2014. “Is Canadian Healthcare Affordable ? A Comparative Analysis of the Canadian Healthcare System from 2004 to 2014 Les Soins de Santé Sont-Ils Abordables Au Canada ? Analyse Comparative Du Système de Santé Canadien de 2004 à 2014.” *Healthcare Policy* 13(1): 43–58.

Spoont, Michele R. et al. 2014. “Impact of Treatment Beliefs and Social Network Encouragement on Initiation of Care by VA Service Users with PTSD.” *Psychiatric Services* 65(5): 654–62.

Stafford, Mai, Bruce K. Newbold, and Nancy A. Ross. 2011. "Psychological Distress among Immigrants and Visible Minorities in Canada: A Contextual Analysis." *International Journal of Social Psychiatry* 57(4): 428–41.

Statistics Canada. 2016. "2016 Census Topic: Age and Sex." https://www12.statcan.gc.ca/census-recensement/2016/rt-td/as-eng.cfm (February 1, 2020).

———. 2017a. "Census in Brief Children with an Immigrant Background: Bridging Cultures." (98): 1–8.

———. 2017b. "Illustrated Glossary - Census Tract (CT)." https://www150.statcan.gc.ca/n1/pub/92-195-x/2016001/geo/ct-sr/ct-sr-eng.htm (January 10, 2022).

———. 2018. "Immigration and Ethnocultural Diversity in Canada."

———. 2021. "Tax Filers and Dependants with Income by Total Income, Sex and Age." https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1110000801 (August 12, 2022).

Steele, Leah S, Carolyn S Dewa, and Elizabaeth Lin. 2007. "Education Level , Income Level and Mental Health Services Use in Canada : Associations and Policy Implications Niveau de Scolarité , Niveau de Revenu et Utilisation Répercussions Sur Les Associations et Les Politiques." *Health Care Policy* 3(1): 96–106.

Stepner, Michael. 2019. "The Insurance Value of Redistributive Taxes and Transfers."

Straus, Sharon E., Eric K.C. Wong, Trina Thorne, and Carole Estabrooks. 2021. "Recommendations from Long-Term Care Reports, Commissions, and Inquiries in Canada." *F1000Research* 10: 1–17.

Stronks, K., H. Van de Mheen, J. Van den Bos, and J. P. Mackenbach. 1997. "The Interrelationship between Income, Health and Employment Status." *International Journal of Epidemiology* 26(3): 592–600.

Sweetman, Arthur. 2017. "Canada's Immigration System: Lessons for Europe?" *Intereconomics* 52(5): 277–84.

Sweetman, Arthur, and Casey Warman. 2013a. "Canada's Immigration Selection System and Labour Market Outcomes." *Canadian Public Policy* 39(SUPPL.1).

———. 2013b. "Canada's Immigration Selection System and Labour Market Outcomes." *Canadian Public Policy* 39(SUPPL.1).

Tanaka, Atsuko. 2021. "The Effects of Sudden Health Reductions on Labor Market Outcomes: Evidence from Incidence of Stroke." *Health Economics (United Kingdom)* 30(6): 1480–97.

The Government of Canada. 2006. Minister of Public Works and Government Services Canada *The Human Face of Mental Health and Mental Illness in Canada 2006*. http://www.phac-aspc.gc.ca/publicat/human-humain06/index-eng.php.

The Standing Senate Committee on Social Affairs, Science and Technology. 2006. The Senate *Transforming Mental Health , Mental Illness and Addiction Services in Canada*.

Thornicroft, Graham, and Michele Tansella. 2004. "Components of a Modern Mental Health Service: A Pragmatic Balance of Community and Hospital Care. Overview of Systematic Evidence." *British Journal of Psychiatry* 185(OCT.): 283–90.

Torres, Sandra. 2009. "Vignette Methodology and Culture-Relevance: Lessons Learned through a Project on Successful Aging with Iranian Immigrants to Sweden." *Journal of Cross-Cultural Gerontology* 24(1): 93–114.

Trevisan, Elisabetta, and Francesca Zantomio. 2016. "The Impact of Acute Health Shocks on the Labour Supply of Older Workers: Evidence from Sixteen European Countries." *Labour Economics* 43: 171–85. http://dx.doi.org/10.1016/j.labeco.2016.04.002.

Tricco, Andrea C. et al. 2015. "A Scoping Review of Rapid Review Methods." *BMC Medicine* 13(1). http://dx.doi.org/10.1186/s12916-015-0465-6.

Tu, Jack V. et al. 2015. "Incidence of Major Cardiovascular Events in Immigrants to Ontario, Canada: The CANHEART Immigrant Study." *Circulation* 132(16): 1549–59.

Um, Seong-gee. 2021. "Reforming Long-Term Care Requires a Diversity and Equity Approach." *Policy Options*. https://policyoptions.irpp.org/magazines/may-2021/reforming-long-term-care-requires-a-diversity-and-equity-approach/.

Um, Seong-gee, and Naomi Lightman. 2016. "Ensuring Healthy Aging for All Home Care Access for Diverse Senior." (July).

Um, Seong-Gee, and Naomi Lightman. 2017. "Seniors' Health in the GTA: How Immigration, Language, and Racialization Impact Seniors' Health." *Wellesley Institute* (May). www.wellesleyinstitute.com.

Vang, Zoua M., Jennifer Sigouin, Astrid Flenon, and Alain Gagnon. 2017. "Are Immigrants Healthier than Native-Born Canadians? A Systematic Review of the Healthy Immigrant Effect in Canada." *Ethnicity and Health* 22(3): 209–41. http://dx.doi.org/10.1080/13557858.2016.1246518.

Vayda, Eugene, and Raisa B Deber. 1984. "The Canadian Health Care System: An Overview." *Soc Sci Med* 18(3): 191–97.

Veldwijk, Jorien et al. 2014. "The Effect of Including an Opt-out Option in Discrete Choice Experiments." *PLoS ONE* 9(11).

Viruell-Fuentes, Edna A., Patricia Y. Miranda, and Sawsan Abdulrahim. 2012. "More than Culture: Structural Racism, Intersectionality Theory, and Immigrant Health." *Social Science and Medicine* 75(12): 2099–2106. http://dx.doi.org/10.1016/j.socscimed.2011.12.037.

Vogel, D.L. et al. 2007. "Seeking Help From a Mental Health Professional: The Influence of One's Social Network." *Journal of Clinical Psychology* 63(3): 233–45.

Vyas, Manav V. et al. 2017. "Lost Productivity in Stroke Survivors: An Econometrics Analysis." *Neuroepidemiology* 47(3–4): 164–70.

Vyas, Manav V., Claire De Oliveira, Audrey Laporte, and Moira K. Kapral. 2019. "The Association between Stroke, Integrated Stroke Systems, and the Employability and Productivity of Canadian Stroke Survivors." *Neuroepidemiology* 53(3–4): 209–19.

Waddell, Charlotte et al. 2019. "2014 Ontario Child Health Study Findings: Policy Implications for Canada." *Canadian Journal of Psychiatry* 64(4): 227–31.

Walsh, Sharon et al. 2019. "Public Preferences for Home Care Services for People with Dementia: A Discrete Choice Experiment on Personhood." *Social Science & Medicine*: 112675. https://doi.org/10.1016/j.socscimed.2019.112675.

Walter Rasugu Omariba, D., Nancy A. Ross, Claudia Sanmartin, and Jack T. Tu. 2014. "Neighbourhood Immigrant Concentration and Hospitalization: A Multilevel Analysis of Cardiovascular-Related Admissions in Ontario Using Linked Data." *Canadian Journal of Public Health* 105(6): e404–11.

Wang, Lu. 2011. "Analysing Spatial Accessibility to Health Care: A Case Study of Access by Different Immigrant Groups to Primary Care Physicians in Toronto." *Annals of GIS* 17(4): 237–51.

Wang, Lu, Sepali Guruge, and Gelsomina Montana. 2019. "Older Immigrants' Access to Primary Health Care in Canada: A Scoping Review." *Canadian Journal on Aging* 38(2): 193–209.

Wang, P et al. 2007. "Use of Mental Health Services for Anxiety, Mood, and Substance

Disorders in 17 Countries in the WHO World Mental Health Surveys." *Lancet* 370: 841–50.
White, Kellee, Jennifer S. Haas, and David R. Williams. 2012. "Elucidating the Role of Place in Health Care Disparities: The Example of Racial/Ethnic Residential Segregation." *Health Services Research* 47(3 PART 2): 1278–99.
Whitley, Rob et al. 2017. "Mental Health Status, Health Care Utilisation, and Service Satisfaction among Immigrants in Montreal: An Epidemiological Comparison." *Canadian Journal of Psychiatry* 62(8).
Wiens, K et al. 2020. "A Growing Need for Youth Mental Healthservices in Canada: Examining Trends Inyouth Mental Health from 2011 to 2018." *Epidemiology and PsychiatricSciences* 29(e115): 1–9.
Wilkinson, Andrea et al. 2019. "Overall Quality Performance of Long-Term Care Homes in Ontario." *Healthcare quarterly* 22(2).
Wolff, Jennifer L., Judith D. Kasper, and Andrew D. Shore. 2008. "Long-Term Care Preferences among Older Adults: A Moving Target?" *Journal of Aging and Social Policy* 20(2): 182–200.
Wong, Irene O.L., Benjamin J. Cowling, Su Vui Lo, and Gabriel M. Leung. 2009. "A Multilevel Analysis of the Effects of Neighbourhood Income Inequality on Individual Self-Rated Health in Hong Kong." *Social Science and Medicine* 68(1): 124–32. http://dx.doi.org/10.1016/j.socscimed.2008.09.064.
Wong, Suzy L., Heather Gilmour, and Pamela L. Ramage-Morin. 2016. "Alzheimer's Disease and Other Dementias in Canada." *Health Reports* 27(5): 11–16.
Zaresani, Arezou. 2018. "Return-to-Work Policies and Labor Supply In." *AEA Papers and Proceedings* 108: 272–76.
Zimmer, David M. 2015. "Employment Effects of Health Shocks: The Role of Fringe Benefits." *Bulletin of Economic Research* 67(4): 346–58.
Zimmerman, Frederick J. 2005. "Social and Economic Determinants of Disparities in Professional Help-Seeking for Child Mental Health Problems: Evidence from a National Sample." *Health Services Research* 40(5 I): 1514–33.
Zondervan-Zwijnenburg, Maria A.J. et al. 2020. "Parental Age and Offspring Childhood Mental Health: A Multi-Cohort, Population-Based Investigation." *Child Development* 91(3): 964–82.

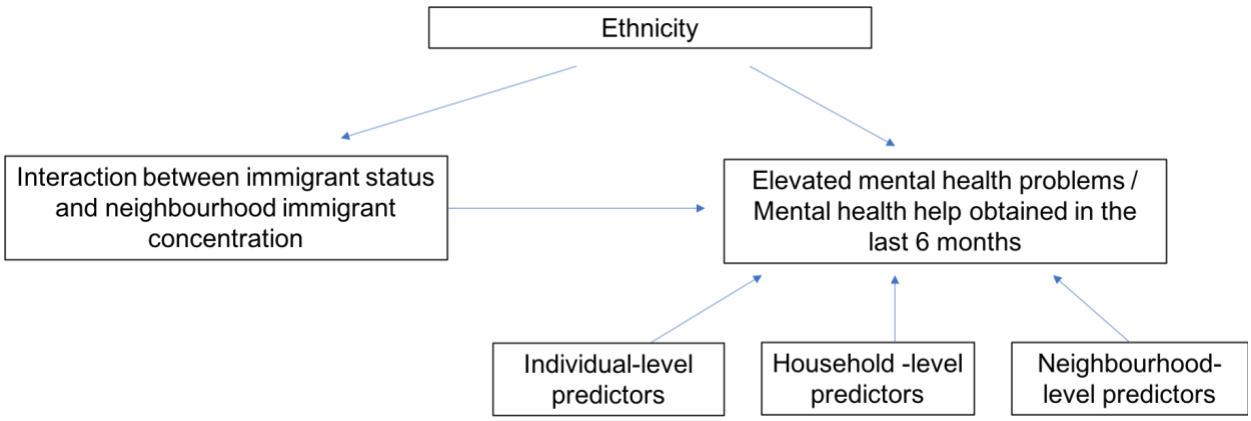


Figure 1: An epidemiological map showing the relationships between variables in the models

Table 1: Description of variables

Variable	Description
Dependent variables	
Mental health elevated problems	Coded 1 if child/youth was likely to have one or more of the following disorders: mood disorder(major depressive episode), anxiety disorders (generalized anxiety, separation anxiety, social phobia, specific phobia), and behaviour disorders (attention-deficit/hyperactivity disorder, oppositional-defiant disorder, conduct disorder) using a set of 52-questions. Each question was scored 0, 1, or 2, indicating responses of 'never or not true', 'sometimes or somewhat true', and 'often or very true', respectively. The raw scores were then summed to form a scale score to measure each disorder. A higher score indicated a greater mental health need. The scores were compared to prevalence cut-offs from Mini-KID. Coded 0 otherwise
Mental health service use	Coded 1 if child/youth had a) seen a psychiatrist, psychologist, social worker, mental health counselor, a general therapist, and/or a school/guidance counselor, b) discussed their mental health with family doctor/pediatrician, walk-in-clinic, urgent care/emergency, and/or general hospital, and/or c) obtained advice or help for their mental health from school setting, helpline or crisis hotline, a spiritual or religious leader, and/or some other person or place, in the last 6 months. Coded 0 otherwise
Immigrant variables	
Household immigrant status	Coded 1 if child belonged to a household in which at least one parent was an immigrant (born outside of Canada) or if they were born outside of Canada. Coded 0 (non-immigrant) otherwise
% born outside Canada	Percentage of households in neighbourhood in which one or more members is born outside of Canada
Household immigrant x % born outside Canada	Interaction variable between immigrant status (level 2 variable) and % born outside Canada (level 3 variable)
Individual-level covariates	
Sex	Sex of child at birth – male or female
Age	Child if individual was between the ages of 4 and 11 as of December 31, 2014. Youth if they were between the ages of 12 and 14

Household-level covariates	
Age	Age of the person most knowledgeable as of December 31, 2014. Categorized to: less than 30, 30-39, 40-49, and 50 or above
Education	Generated a new education variable from two questions: a) "Have you received any other education that could be counted towards a certificate, diploma or degree from an educational institution?" and b) "What is the highest certificate, diploma or degree that you have completed? Categories were no education at institution, high school or less, college diploma or degree/trade certificate, university bachelor degree, and university degree above bachelors
Household income	Total income received by all household members, from all sources, before taxes and deductions, in the past 12 months. Categorized to ($CAD): <20000, 20000-49999, 50000-79999, 80000-109999, and >110000
Labor	Generated labor variable from question asking about their present primary activity. Categorized to: full-time employed, part-time employed, self-employed, or non-employed. Non-employed category included those who were temporarily sick or disabled, permanently sick or disabled, looking after home or family, and going to school
Marital status	Marital status of person most knowledgeable. Categorized to: married or common-law, widowed, separated or divorced, and single, never married
Ethnicity	Racial or cultural group of person most knowledgeable. Categorized to: White, South Asian, East-Asian, Black/Latin American, Indigenous/West Asian/Arab, and Other
Mental health service use of parent	Coded 1 if parent had in their lifetime, talk to a doctor or counselor about problems with their emotions, mental health, or use of alcohol or drugs. 0 if otherwise
Number of children	Number of children in the household of any age
Neighbourhood-level covariates	
Urban	Whether the neighborhood was largely urban (population of 100,000 or greater), medium urban (population of 30,000 to 999,999), small urban (1000 to 29,9999) or rural (less than 1000 people). Small and medium urban were grouped together.

Percent lone family	% of families in census tract headed by lone parents. Categorized to: low, moderate, and high
Percent rent	% of households in census tract who rent their dwelling. Categorized to (%): <20, 20-39, 40-59, >=60
Percent non-educated	% of population in census tract who do not have secondary education. Categorized to: <10, 10-19, 20-30, >=30
Percent of households under poverty rate	% of households who had low-income in 2010 based on after-tax low income measure. Categorized to: <10, 10-19, 20-30, >=30

Table 2: Sample characteristics

Characteristic	Non-immigrant n (%)	Immigrant n (%)	Total n (%)
Outcome variables			
Had elevated mental health problems	1494 (26%)	620 (16%)	2114 (22%)
Used mental health service use	2155 (38%)	682 (18%)	2838 (30%)
Individual-level variables			
Female	2811 (49%)	1806 (48%)	4616 (49%)
Youth	5234 (62%)	1647 (43%)	4182 (44%)
Household-level variables			
Age of parent			
<30	223 (4%)	122 (3%)	345 (4%)
30-39	2015 (35%)	1196 (32%)	3210 (34%)
40-49	2819 (49%)	2088 (55%)	4907 (52%)
50+	660 (12%)	383 (10%)	1043 (11%)
Education			
No education at institution	867 (15%)	650 (17%)	1517 (16%)
High-school or less	242 (4%)	127 (3%)	369 (4%)
Trade/college/certificate	2700 (47%)	1362 (36%)	4062 (43%)
Bachelors	1277 (22%)	1089 (29%)	2366 (25%)
Above bachelors	631 (11%)	560 (15%)	1191 (13%)
Household income			
<$20,000 CAD	169 (3%)	312 (8%)	481 (5%)
$20,000 – $49,999 CAD	531 (9%)	632 (17%)	1163 (12%)

$50,000 - $79,999 CAD	1220 (21%)	1113 (29%)	2333 (25%)
$80,000 - $109,999 CAD	1648 (29%)	934 (25%)	2582 (27%)
$110,000 or more	2149 (38%)	797 (21%)	2946 (31%)
Labour			
Part-time	3238 (57%)	2022 (53%)	5260 (55%)
Self-employed	690 (12%)	494 (13%)	1184 (12%)
Non-employed	646 (11%)	396 (10%)	1042 (11%)
Full-time employed	1143 (20%)	876 (23%)	2019 (21%)
Marital status			
Married	4624 (81%)	3277 (87%)	7901 (83%)
Separated, divorced, widowed	795 (14%)	352 (9%)	1147 (12%)
Single, never married	298 (5%)	159 (4%)	457 (5%)
Number of children			
One	810 (14%)	647 (17%)	1457 (15%)
Two	3063 (54%)	1902 (50%)	4965 (52%)
Three	1246 (22%)	864 (23%)	2110 (22%)
Four	446 (8%)	238 (6%)	684 (7%)
Five or more	152 (3%)	137 (4%)	289 (3%)
Parent service use	2551(45%)	589 (16%)	3141 (33%)
Ethnicity			
White	5292 (92%)	796 (21%)	6088 (64%)
South-Asian	48 (1%)	965 (25%)	1013 (11%)
East-Asian	109 (2%)	864 (23%)	973 (10%)
Black, Latino	126 (2%)	608 (16%)	734 (8%)

Arab, West-Asian	14 (0%)	318 (8%)	332 (3%)
Other	128 (2%)	237 (6%)	365 (4%)
Neighbourhood-level variables			
Population size			
Rural	1094 (19%)	126 (3%)	1220 (13%)
Medium-small urban	1327 (23%)	251 (7%)	1572 (17%)
Large urban	3296 (58%)	3411 (90%)	6707 (71%)
Percent rent			
<20%	3952 (69%)	2054 (54%)	6006 (63%)
20-39%	955 (17%)	726 (19%)	1681 (18%)
40-59%	514 (9%)	533 (14%)	1047 (11%)
>=60%	296 (5%)	475 (13%)	771 (8%)
Percent lone family			
Low	2957 (52%)	1532 (40%)	4489 (47%)
Moderate	1662 (29%)	1015 (27%)	2677 (28%)
High	1098 (19%)	1241 (33%)	2339 (25%)
Percent non-educated			
<10%	426 (7%)	266 (7%)	692 (7%)
10-19%	3201 (56%)	2141 (57%)	5342 (56%)
20-29%	1715 (30%)	1278 (34%)	2993 (31%)
>30%	375 (7%)	103 (3%)	478 (5%)
Percent poverty			
<10%	3110 (54%)	1230 (32%)	4340 (46%)
10-19%	1914 (33%)	1560 (41%)	3474 (37%)

20-29%	381 (7%)	611 (16%)	992 (10%)
>30%	312 (5%)	387 (10%)	699 (7%)
Total	5717 (60%)	3788 (40%)	9505 (100%)

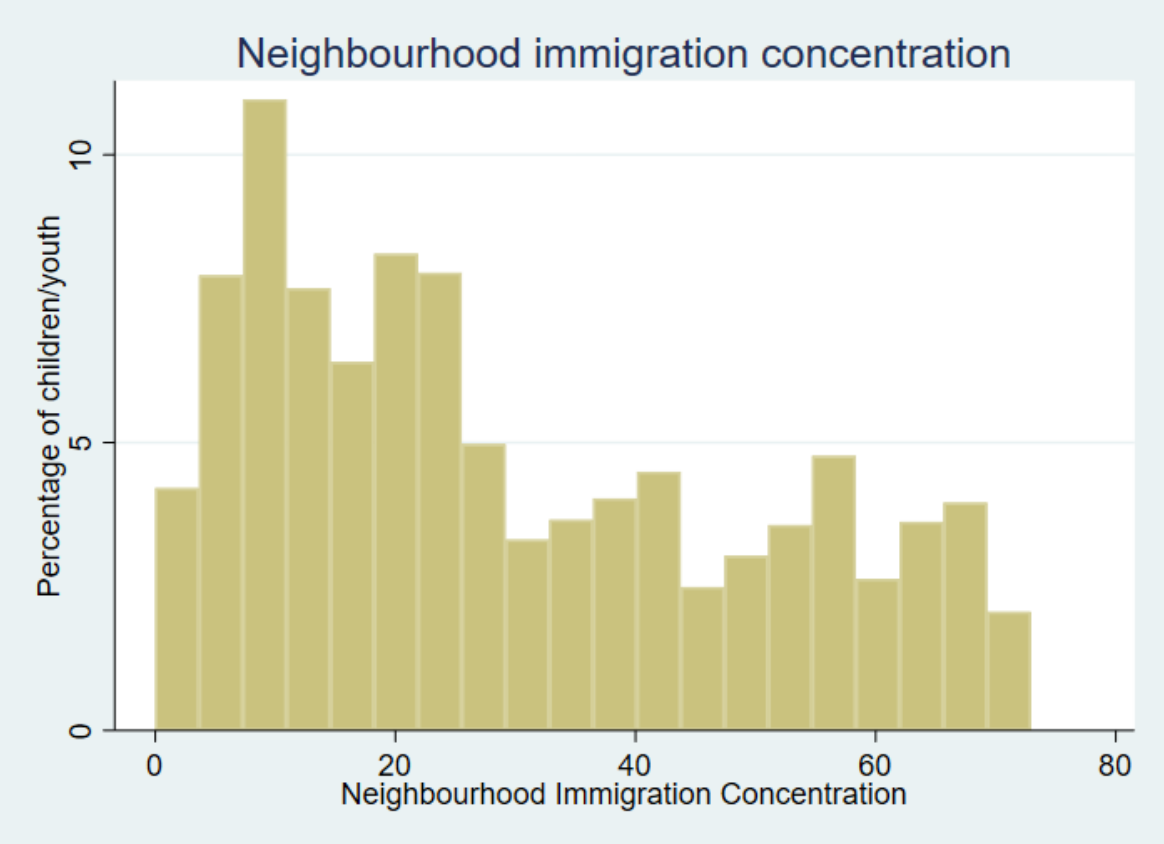


Figure 2: Distribution of neighbourhood immigration concentration

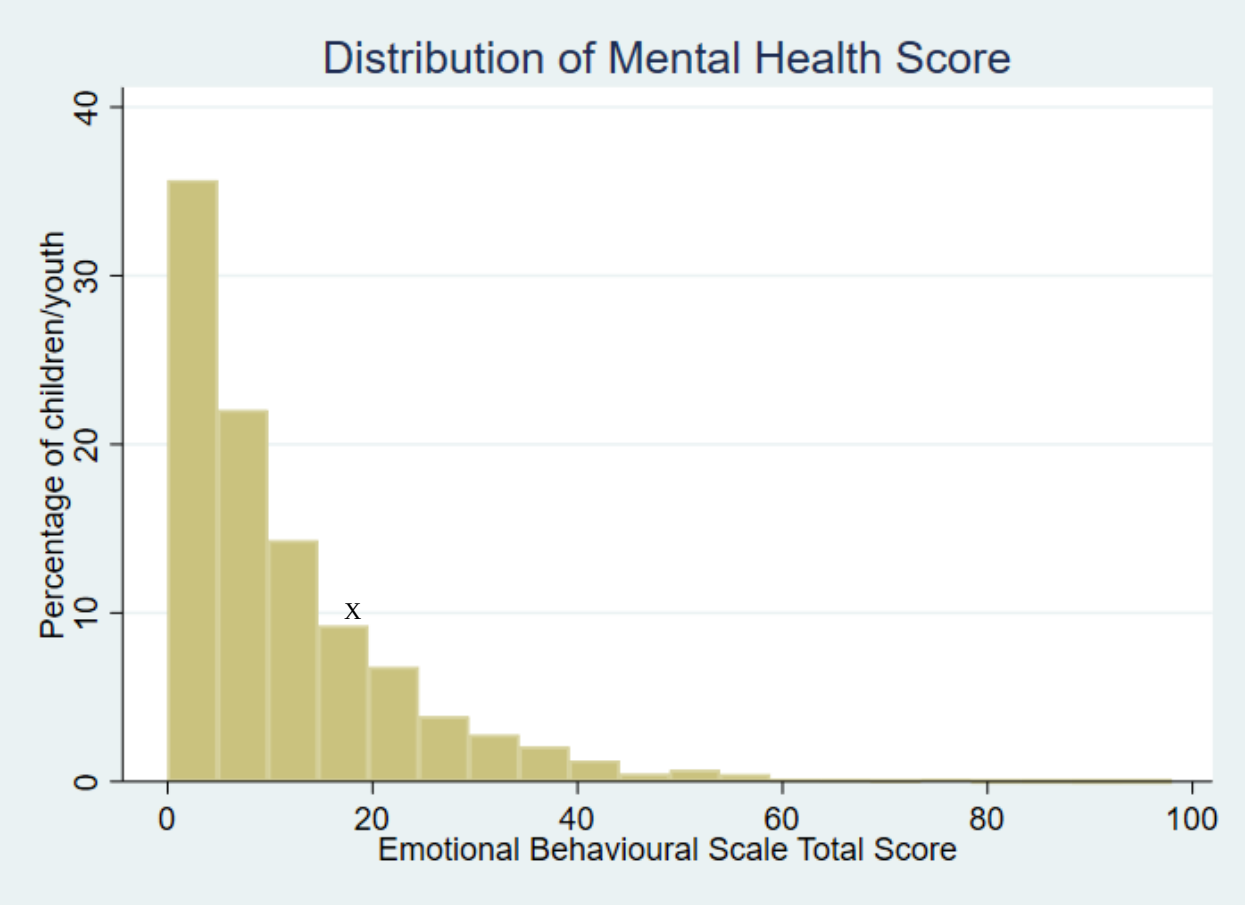


Figure 3: Distribution of mental health score. X indicates cut-off point for the dichotomous mental health outcome variable.

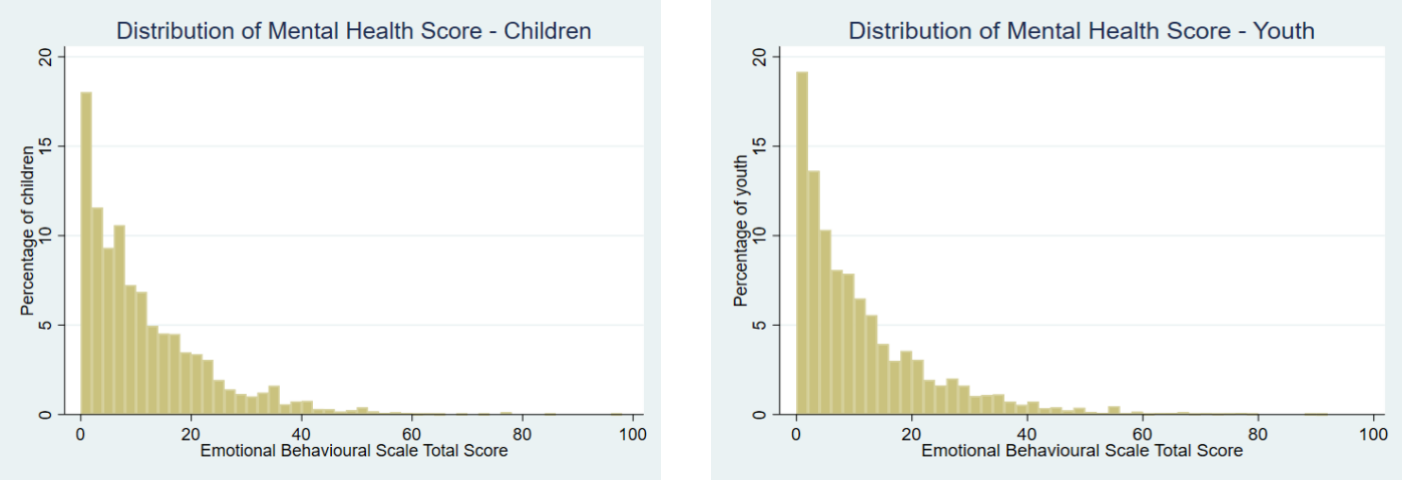


Figure 4: Distribution of mental health score in children versus youth

Table 3: Multilevel null models for mental health problems (Y1) and mental health service use (Y2) (n=9505)

	Y1 = Elevated mental health problems		Y2 = Mental health service use	
	Estimate	95% CI	Estimate	95% CI
Fixed-part Intercept				
_cons	-2.09	[-2.28, -1.91]	-0.91	[-1.43, -0.39]
Random-part Variances				
Level 2 Intercept Variance: households	3.64	[2.84, 4.66]	2.63	[2.11, 3.27]
Level 3 Intercept Variance: neighbourhoods	0.21	[0.11, 0.38]	0.84	[0.42, 1.70]
Log likelihood	-4563		-12513	
AIC	9132		25032	
BIC	9152		25053	
Level 2 Intraclass Correlation	0.54 [0.48, 0.60]		0.51 [0.45, 0.57]	
Level 3 Intraclass Correlation	0.03 [0.02, 0.05]		0.12 [0.07, 0.22]	

Note 1. CI=Confidence interval; AIC=Akaike Information Criterion; BIC=Bayesian Information Criterion

Note 2. Errors were clustered at the neighbourhood-level

Table 4: Multi-level logistic regression model: factors associated with odds of having mental health elevated problems (n=9505)

Model #	1		2		3		4		5		6		7	
Model description	Household immigrant		Household immigrant + immigrant concentration		Household immigrant x immigrant concentration		Child-level indicators added		Household-level indicators added		Neighbourhood-level indicators added		Ethnicity variable added	
	OR	[95% CI]	OR	[95% CI]	OR	[95% CI]	OR	[95% CI]	OR	[95% CI]	OR	[95% CI]	OR	[95% CI]
Immigrant Variables														
Household immigrant	0.58***	[0.48, 0.70]	0.69***	[0.56, 0.85]	0.67***	[0.54, 0.83]	0.67***	[0.53, 0.83]	0.79**	[0.63, 0.98]	0.81**	[0.65, 1.01]	0.89	[0.70, 1.13]
% born outside Canada			0.89***	[0.84, 0.94]	0.83***	[0.77, 0.90]	0.83**	[0.77, 0.90]	0.88***	[0.82, 0.95]	0.86***	[0.78, 0.95]	0.88**	[0.79, 0.98]
Household immigrant x % born outside Canada					1.14**	[1.02, 1.28]	1.14**	[1.02, 1.28]	1.11	[0.99, 1.23]	1.07	[0.95, 1.21]	1.07	[0.95, 1.21]
Level 1 variables: individuals														
Female							0.70***	[0.62, 0.79]	0.71***	[0.62, 0.80]	0.70***	[0.62, 0.80]	0.70***	[0.62, 0.80]
Youth							0.85**	[0.74, 0.97]	0.79***	[0.68, 0.92]	0.79***	[0.68, 0.91]	0.79***	[0.68, 0.91]
Level 2 variables: households														
Age of parent (referent category: <30 years old)														
30-39									1.59**	[1.08, 2.23]	1.61**	[1.09, 2.37]	1.61**	[1.09, 2.38]
40-49									1.71***	[1.14, 2.56]	1.74***	[1.16, 2.62]	1.74***	[1.15, 2.62]
>50									1.98***	[1.26, 3.12]	2.05***	[1.30, 3.32]	2.01***	[1.28, 3.17]
Education (referent category: above bachelors)														
No education at institution									1.22	[0.84, 1.79]	1.20	[0.81, 1.75]	1.22	[0.84, 1.79]
High-school or less									1.38	[0.86, 2.22]	1.35	[0.83, 2.19]	1.38	[0.85, 2.26]
Trade/college/certificate									1.14	[0.88, 1.45]	1.12	[0.87, 1.45]	1.14	[0.88, 1.48]
Bachelors									1.02	[0.78, 1.33]	1.02	[0.78, 1.33]	1.02	[0.78, 1.34]
Household income (referent category: below $20,000 CAD)														
$20000-49999									1.15	[0.82, 1.63]	1.15	[0.82, 1.62]	1.15	[0.81, 1.63]
$50000-79999									1.21	[0.81, 1.81]	1.25	[0.82, 1.89]	1.23	[0.81, 1.88]
$80000-109999									1.05	[0.73, 1.51]	1.13	[0.78, 1.63]	1.13	[0.78, 1.63]
$110000-139999									0.74	[0.51, 1.05]	0.78	[0.54, 1.12]	0.77	[0.54, 1.10]
Labor (referent category: full-time employment)														
Part-time									1.58***	[1.22, 2.05]	1.60***	[1.23, 2.09]	1.58***	[1.21, 2.06]
Self-employed									1.55***	[1.23, 1.96]	1.57***	[1.24, 2.00]	1.53***	[1.20, 1.95]
Non-employed									1.80***	[1.43, 2.27]	1.82***	[1.44, 2.30]	1.78***	[1.41, 2.25]
Marital status (referent category: married)														
Separated/divorced/widowed									1.16	[0.90, 1.49]	1.18	[0.92, 1.52]	1.22*	[0.94, 1.57]
Single, never married									1.68***	[1.18, 2.38]	1.68***	[1.18, 2.39]	1.86***	[1.29, 2.67]
Number of children (referent category: one)														
Two									0.77***	[0.63, 0.95]	0.79**	[0.64, 0.97]	0.79**	[0.64, 0.98]
Three									0.69***	[0.55, 0.88]	0.71***	[0.56, 0.91]	0.73***	[0.58, 0.93]
Four									0.45***	[0.30, 0.67]	0.46***	[0.31, 0.68]	0.49***	[0.32, 0.72]
Five or more									0.42**	[0.25, 0.72]	0.42**	[0.25, 0.72]	0.42**	[0.25, 0.72]
Parent service use									3.61***	[3.00, 4.35]	3.59***	[2.99, 4.31]	3.53***	[2.93, 4.24]
Ethnicity (referent category: White)														
South-Asian													0.64**	[0.44, 0.92]
East-Asian													1.04	[0.73, 1.49]
Black/Latino													0.56***	[0.38, 0.82]
Arab/West Asian													1.40*	[0.92, 2.13]
Other													0.79	[0.52, 1.21]
Level 3 variables: neighbourhoods														
Population size (referent category: rural)														
Medium-small urban											0.91	[0.73, 1.14]	0.92	[0.74, 1.14]
Large urban											0.85	[0.58, 1.26]	0.87	[0.50, 1.51]
Percent rent (referent category: <20%)														
20-39%											0.83	[0.62, 1.12]	0.83	[0.62, 1.10]

40-59%											0.68	[0.38, 1.25]	0.68	[0.38, 1.22]
>=60%											0.60	[0.31, 1.17]	0.62	[0.33, 1.20]
Percent lone family (referent category: low)														
Moderate											1.25	[0.95, 1.64]	1.24	[0.94, 1.64]
High											1.22	[0.70, 2.15]	1.25	[0.72, 2.15]
Percent non-educated (referent category: <10%)														
10-19%											0.85	[0.65, 1.11]	0.90	[0.68, 1.19]
20-29%											0.81	[0.60, 1.10]	0.89	[0.66, 1.19]
>30%											1.01	[0.65, 1.56]	1.09	[0.69, 1.73]
Percent poverty (referent category: <10%)														
10-19%											1.48**	[1.11, 1.97]	1.46**	[1.08, 1.99]
20-29%											1.83**	[1.17, 2.85]	1.76**	[1.12, 2.75]
>30%											1.93*	[1.12, 3.31]	1.81	[1.04, 3.16]
Fixed part intercept	0.16***	[0.13, 0.19]	0.15***	[0.12, 0.18]	0.14***	[0.12, 0.17]	0.18***	[0.15, 0.22]	0.07***	[0.04, 0.12]	0.07***	[0.04, 0.14]	0.07***	[0.03, 0.14]
Random part intercept														
Var (_cons): Neighbourhood	0.14	[0.06, 0.30]	0.10	[0.03, 0.29]	0.09	[0.02, 0.32]	0.09	[0.02, 0.32]	0.04	[0.00, 1.62]	0.01	[0.00, 529]	0.00	[0.00, 0.00]
Var (_cons): Household	3.61	[2.81, 4.63]	3.63	[2.83, 4.66]	3.62	[2.83-, .64]	3.71	[2.89, 4.75]	3.04	[2.35, 3.95]	3.04	[2.36, 3.93]	3.01	[2.34, 3.87]

Log-likelihood	-4547	-4539	-4536	-4522	-4342	-4329	-4318
AIC	9101	9088	9085	9060	8741	8742	8731
BIC	9130	9124	9128	9117	8949	9043	9067

Note 1. OR=Odds Ratio; CI=Confidence interval; AIC=Akaike Information Criterion; BIC=Bayesian Information Criterion

Table 5: Multi-level logistic regression model: factors associated with odds of using mental health services in the past 6 months (n=9505)

Model #	1		2		3		4		5		6		7	
Model description	Household immigrant		Household immigrant + immigrant concentration		Household immigrant x immigrant concentration		Child-level indicators added		Household-level indicators added		Neighbourhood-level indicators added		Ethnicity variable added	
	OR	[95% CI]	OR	[95% CI]	OR	[95% CI]	OR	[95% CI]	OR	[95% CI]	OR	[95% CI]	OR	[95% CI]
Immigrant Variables														
Household immigrant	0.30***	[0.24, 0.36]	0.39***	[0.32, 0.48]	0.39***	[0.32, 0.48]	0.40***	[0.32, 0.50]	0.56***	[0.45, 0.71]	0.57***	[0.46, 0.72]	0.64***	[0.49, 0.83]
% born outside Canada			0.84***	[0.80, 0.88]	0.85***	[0.80, 0.91]	0.92**	[0.85, 1.01]	0.94	[0.86, 1.01]	0.93	[0.84, 1.03]	0.94	[0.85, 1.04]
Household immigrant x % born outside Canada					0.96	[0.86, 1.07]	0.92	[0.83, 1.03]	0.94	[0.84, 1.05]	0.92	[0.83, 1.03]	0.93	[0.83, 1.04]
Level 1 variables: individuals														
Female							0.81***	[0.71, 0.93]	0.81***	[0.71, 0.93]	0.81***	[0.71, 0.93]	0.81***	[0.71, 0.93]
Mental health							13.65***	[10.03, 18.58]	11.20***	[8.24, 15.23]	11.09***	[8.15, 15.08]	11.10***	[8.16, 15.11]
Youth							0.95	[0.82, 1.10]	1.01	[0.87, 1.18]	1.01	[0.86, 1.17]	1.01	[0.8, 1.17]
Level 2 variables: households														
Age of parent (referent category: <30 years old)														
30-39									0.74	[0.45, 1.23]	0.75	[0.45, 1.22]	0.74	[0.45, 1.21]
40-49									0.67	[0.40, 1.13]	0.68	[0.41, 1.15]	0.68	[0.40, 1.13]
>50									0.57	[0.31, 1.07]	0.59	[0.32, 1.08]	0.58	[0.31, 1.06]
Education (referent category: above bachelors)														
No education at institution									0.77	[0.55, 1.07]	0.77	[0.55, 1.06]	0.76	[0.55, 1.05]
High-school or less									0.85	[0.53, 1.36]	0.83*	[0.52, 1.33]	0.83*	[0.52, 1.33]
Trade/college/certificate									0.83	[0.65, 1.05]	0.82	[0.65, 1.05]	0.82	[0.64, 1.04]
Bachelors									1.02	[0.79, 1.32]	1.03*	[0.80, 1.32]	1.03*	[0.81, 1.33]
Household income (referent category: below $20,000 CAD)														
$20000-49999									1.25	[0.91, 1.71]	1.24	[0.90, 1.70]	1.24	[0.91, 1.71]
$50000-79999									1.16	[0.80, 1.68]	1.19	[0.82, 1.73]	1.18	[0.82, 1.71]
$80000-109999									1.30	[0.88, 1.91]	1.35	[0.92, 2.00]	1.33	[0.90, 1.96]
$110000-139999									1.53**	[1.06, 2.21]	1.58**	[1.09, 2.30]	1.55**	[1.07, 2.24]
Labor (referent category: full-time employment)														
Part-time									1.02	[0.79, 1.32]	1.02	[0.78, 1.32]	1.02	[0.78, 1.32]
Self-employed									0.88	[0.69, 1.13]	0.89	[0.69, 1.15]	0.89	[0.69, 1.15]
Non-employed									1.20	[0.97, 1.48]	1.21*	[0.98, 1.49]	1.22**	[0.99, 1.50]
Marital status (referent category: married)														
Separated/ divorced/widowed									1.85***	[1.45, 2.37]	1.86***	[1.46, 2.39]	1.85***	[1.45, 2.38]
Single, never married									1.71***	[1.21, 2.41]	1.70***	[1.22, 2.38]	1.70***	[1.21, 2.37]
Number of children														
Two									1.16	[0.92, 1.47]	1.17	[0.92, 1.48]	1.17	[0.92, 1.48]
Three									0.89	[0.69, 1.15]	0.90	[0.70, 1.16]	0.91	[0.70, 1.16]
Four									0.87	[0.56, 1.35]	0.85	[0.55, 1.31]	0.86	[0.59, 1.29]
Five or more									0.76	[0.42, 1.37]	0.76**	[0.43, 1.34]	0.76**	[0.18, 0.93]
Parent service use									3.24***	[2.69, 3.91]	3.23***	[2.68, 3.89]	3.23***	[2.68, 3.88]
Ethnicity (referent category: White)														
South-Asian													0.86	[0.55, 1.33]
East-Asian													0.79	[0.54, 1.14]
Black/Latino													0.84	[0.59, 1.21]
Arab/West Asian													0.71	[0.37, 1.28]
Other													0.80	[0.47, 1.37]
Level 3 variables: neighbourhoods														
Population size (referent category: rural)														
Medium-small urban											1.35	[0.93, 1.97]	1.36	[0.94, 1.97]
Large urban											0.86	[0.55, 1.36]	0.86	[0.55, 1.35]

Percent rent (referent category: <20%)														
20-39%											1.15	[0.84, 1.48]	1.14	[0.84 , 1.56]
40-59%											1.14	[0.62, 1.72]	1.12	[0.61, 2.05]
>=60%											1.33	[0.68, 2.63]	1.30	[0.66, 2.56]
Percent lone family (referent category: low)														
Moderate											0.99	[0.75, 1.29]	0.99	[0.76, 1.30]
High											0.96	[0.51, 1.81]	0.97	[0.52, 1.81]
Percent non-educated (referent category: <10%)														
10-19%											1.22*	[0.93, 1.60]	1.20	[0.91, 1.58]
20-29%											0.99	[0.72, 1.35]	0.97	[0.71, 1.33]
>30%											1.05	[0.66, 1.67]	1.03	[0.64. 1.66]
Percent poverty (referent category: <10%)														
10-19%											1.44***	[1.13, 1.84]	1.44***	[1.13, 1.84]
20-29%											1.46	[0.92, 2.33]	1.46	[0.92, 2.32]
>30%											1.18	[0.69, 2.03]	1.19	[0.69, 2.05]
Fixed part intercept	0.50***	[0.39, 0.65]	0.39***	[0.34, 0.45]	0.41***	[0.37, 0.49]	0.22***	[0.18, 0.26]	0.12***	[0.06, 0.26]	0.09***	[0.04, 0.25]	0.10***	[0.04, 0.26]
Random part intercept														
Var (_cons): Neighbourhood	0.43	[0.27, 0.68]	0.37	[0.24, 0.58]	0.38	[0.24, 0.59]	0.38	[0.23, 0.61]	0.38	[0.23, 0.62]	0.33	[0.20, 0.55]	0.33	[0.20, 0.55]
Var (_cons): Household	2.83	[2.19, 3.64]	3.11	[2.48, 3.90]	3.12	[2.50, 3.89]	3.40	[2.79, 4.15]	3.04	[2.47, 3.73]	3.02	[2.45, 3.70]	3.02	[2.46, 3.70]
Log-likelihood	-12410		-12387		-12387		-4662		-4541		-4530		-4529	
AIC	24827		24784		24786		9342		9142		9146		9153	
BIC	24854		24820		248229		9406		9356		9454		9496	

Note 1. OR=Odds Ratio; CI=Confidence interval; AIC=Akaike Information Criterion; BIC=Bayesian Information Criterion

Table 6a: Sensitivity Analysis: factors associated with odds of having mental health disorder in the past 6 months within subgroups

	Labour is removed		Internalizing disorders		Externalizing disorders	
	OR	[95% CI]	OR	[95% CI]	OR	[95% CI]
Immigrant Variables						
Immigrant status	0.91	[0.72, 1.15]	0.82*	[0.62, 1.08]	0.79*	[0.59, 1.06]
Neighbourhood immigrant concentration	0.88	[0.81, 0.96]	0.83***	[0.75, 0.93]	0.83***	[0.75, 0.93]
Immigrant x immigrant concentration	1.06	[0.95, 1.18]	1.10	[0.98, 1.25]	1.11	[0.97, 1.26]
Level 1 variables: individuals						
Female	0.70	[0.62, 0.79]	0.75***	[0.65, 0.87]	0.77***	[0.65, 0.90]
Youth	0.78	[0.67, 0.90]	0.84*	[0.71, 0.99]	0.86	[0.72, 1.02]
Level 2 variables: households						
Age of parent (referent category: <30 years old)						
30-39	1.50	[1.01, 2.21]	1.50**	[0.95, 2.35]	1.62**	[1.04 , 2.52]
40-49	1.58	[1.05, 2.37]	1.68***	[1.04, 2.72]	1.89***	[1.17, 3.05]
>50	1.94	[1.23, 3.06]	1.81***	[1.07, 3.07]	2.16***	[1.27, 3.68]
Education (referent category: above bachelors)						
No education at institution	1.48	[0.91, 2.39]	0.98	[0.54, 1.79]	0.98	[0.57, 1.71]
High-school or less	1.16	[0.89, 1.50]	1.07	[0.79, 1.45]	1.07	[0.79, 1.45]
Trade/college/certificate	1.03	[0.79, 1.36]	0.99	[0.72, 1.36]	1.01	[0.73, 1.41]
Bachelors	1.27	[0.86, 1.88]	1.17	[0.73, 1.86]	1.18	[0.72, 1.91]
Household income (referent category: below $20,000 CAD)						
$20000-49999	1.09	[0.77, 1.53]	1.39*	[0.96 , 2.01]	1.59**	[1.07, 2.37]
$50000-79999	1.06	[0.71, 1.59]	1.32	[0.86, 2.04]	1.45	[0.92, 2.28]
$80000-109999	0.93	[0.66, 1.32]	1.32	[0.87, 2.01]	1.51*	[0.98, 2.35]
$110000-139999	0.59	[0.42, 0.82]	0.82	[0.55, 1.20]	0.92	[0.62, 1.35]
Labor (referent category: full-time employment)						
Part-time	-	-	1.74***	[1.32 , 2.31]	1.67***	[1.26, 2.21]
Self-employed	-	-	1.34*	[0.97, 1.84]	1.14	[0.81, 1.60]
Non-employed	-	-	1.93***	[1.51, 2.47]	1.85***	[1.45, 2.37]
Marital status (referent category: married)						
Separated/divorced/widowed	1.17	[0.91, 1.50]	1.47***	[1.13, 1.90]	1.47***	[1.12, 1.94]
Single, never married	1.84	[1.29, 2.64]	1.90***	[1.31, 2.74]	2.15***	[1.50, 3.10]
Number of children (referent category: one)						
Two	0.80	[0.65, 0.99]	0.72***	[0.57, 0.91]	0.70***	[0.55, 0.88]
Three	0.78	[0.61, 0.99]	0.72***	[0.55, 0.93]	0.72***	[0.55, 0.95]
Four	0.55	[0.37, 0.83]	0.36***	[0.23, 0.55]	0.35***	[0.23, 0.53]
Five	0.47	[0.28, 0.81]	0.38***	[0.19, 0.74]	0.38***	[0.19, 0.75]
Parent service use			3.72***	[3.06, 4.51]	3.65***	[2.99, 4.46]
Ethnicity (referent category: White)						
South-Asian	0.64	[0.44, 0.92]	0.88	[0.57, 1.37]	1.00	[0.64, 1.56]
East-Asian	1.02	[0.72, 1.46]	1.17	[0.78, 1.76]	1.23	[0.80, 1.88]
Black/Latino	0.55	[0.38, 0.79]	0.67*	[0.42, 1.08]	0.71	[0.45, 1.12]
Arab/West Asian	1.52	[1.00, 2.31]	1.55	[0.91, 2.65]	1.80**	[1.04, 3.11]
Other	0.79	[0.52, 1.21]	1.04	[0.61, 1.77]	0.98	[0.56, 1.70]
Level 3 variables: neighbourhoods						
Population size (referent category: rural)						
Medium-small urban	0.91	[0.73, 1.13]	0.89	[0.70, 1.13]	0.97	[0.77, 1.22]
Large urban	0.87	[0.68, 1.11]	0.91	[0.70, 1.19]	0.95	[0.72, 1.25]
Percent rent (referent category: <20%)						
20-39%	0.84	[0.63, 1.12]	1.01	[0.73, 1.38]	1.04	[0.78, 1.41]
40-59%	0.68	[0.38, 1.24]	0.73	[0.38, 1.41]	0.79	[0.44- 1.41]
>=60%	0.62	[0.32, 1.21]	0.64	[0.32, 1.30]	0.68	[0.36, 1.28]
Percent lone family (referent category: low)						
Moderate	1.21	[0.93, 1.59]	1.33*	[1.02, 1.73]	1.30	[0.99, 1.72]
High	1.24	[0.70, 2.19]	1.00	[0.56, 1.79]	1.04	[0.59, 1.82]

Percent non-educated (referent category: <10%)						
10-19%	0.88	[0.69, 1.13]	0.94	[0.70 , 1.25]	0.93	[0.71, 1.23]
20-29%	0.85	[0.64, 1.15]	0.97	[0.70, 1.36]	0.99	[0.73, 1.35]
>30%	1.02	[0.65, 1.61]	1.29	[0.78, 2.02]	1.27	[0.79, 2.03]
Percent poverty (referent category: <10%)						
10-19%	1.46	[1.14, 1.86]	1.16	[0.85, 1.57]	1.16	[0.88, 1.53]
20-29%	1.74	[1.17, 2.59]	1.98**	[1.15, 3.03]	1.82***	[1.23, 2.70]
>30%	1.83	[1.12, 3.06]	2.02**	[0.97, 3.18]	1.85*	[1.11, 3.07]
Fixed part intercept	0.11	[0.05, 0.20]	0.03***	[0.01, 0.06]	0.02***	[0.01, 0.04]
Random part intercept						
Var (_cons): Household	3.08	[2.38, 3.99]	2.90	[2.15, 3.91]	2.77	[2.07, 3.71]
Var (_cons): Neighbourhood	0.00	[0.00, 0.00]	0.00	[0.00, 0.00]	0.00	[0.00, 0.00]
Number of individuals		9505		9505		9505
Number of households		5751		5751		5751
Number of neighbourhoods		348		348		348

Note 1. OR=Odds Ratio; CI=Confidence interval; AIC=Akaike Information Criterion; BIC=Bayesian Information Criterion

Table 6b: Sensitivity Analysis: factors associated with odds of having mental health disorder in the past 6 months within subgroups

	Recent immigrants		Long-term immigrants		Refugees		Non-refugees	
	OR	[95% CI]	OR	[95% CI]	OR	[95% CI]	OR	[95% CI]
Immigrant Variables								
Immigrant	0.94	[0.73, 1.19]	0.87	[0.59, 1.27]	1.01	[0.61, 1.69]	0.88	[0.68, 1.12]
Neighbourhood immigrant concentration	0.88***	[0.81, 0.96]	0.88**	[0.80, 0.97]	0.90**	[0.82, 0.98]	0.87**	[0.80, 0.95]
Immigrant x Immigrant concentration	1.10	[0.98, 1.23]	1.03	[0.90, 1.18]	1.12	[0.90, 1.40]	1.07	[0.96, 1.19]
Level 1 covariates: individuals								
Female	0.70***	[0.61, 0.80]	0.66***	[0.58, 0.76]	0.64***	[0.55, 0.75]	0.72***	[0.63, 0.81]
Youth	0.88	[0.75, 1.05]	0.80**	[0.68, 0.94]	0.94	[0.77, 1.14]	0.77***	[0.67, 0.90]
Level 2 covariates: households								
Age of parent (referent category: <30)								
30-39	1.69**	[1.09, 2.63]	1.43*	[0.95, 2.15]	1.46*	[0.95, 2.23]	1.59**	[1.06, 2.38]
40-49	1.79**	[1.10, 2.90]	1.70**	[1.10, 2.63]	1.77**	[1.09, 2.81]	1.68**	[1.09, 2.59]
>50	1.99***	[1.20, 3.39]	2.01***	[1.25, 3.23]	1.87**	[1.12, 3.11]	2.01***	[1.26, 3.21]
Education (referent category: Above bachelors)								
No education at institution	1.26	[0.81, 1.97]	1.33	[0.91, 1.96]	1.43	[0.95, 2.17]	1.17	[0.77, 1.79]
High-school or less	1.29	[0.76, 2.20]	1.36	[0.80, 2.30]	1.37	[0.78, 2.39]	1.25	[0.75, 2.07]
Trade/college/certificate	1.12	[0.82, 1.52]	1.17	[0.89, 1.54]	1.21	[0.89, 1.65]	1.09	[0.83, 1.43]
Bachelors	1.01	[0.74 , 1.37]	1.06	[0.80, 1.41]	1.06	[0.76, 1.46]	1.01	[0.77, 1.34]
Household income (referent category: below $20,000 CAD)								
$20000-49999	1.22	[0.83, 1.78]	1.17	[0.82, 1.69]	1.07	[0.72, 1.57]	1.29	[0.89, 1.87]
$50000-79999	1.25	[0.80, 1.93]	1.28	[0.81, 2.04]	1.21	[0.78, 1.87]	1.32	[0.85, 2.05]
$80000-109999	1.06	[0.72, 1.58]	1.25	[0.82, 1.89]	1.13	[0.76, 1.67]	1.19	[0.81, 1.77]
$110000-139999	0.83	[0.57, 1.23]	0.76	[0.51, 1.13]	0.79	[0.54, 1.16]	0.82	[0.55, 1.20]
Labor (referent category: full-time employment)								
Part-time	1.39***	[1.07, 1.80]	1.69***	[1.25, 2.27]	1.48***	[1.11, 1.98]	1.59***	[1.23, 2.07]
Self-employed	1.71***	[1.31, 2.23]	1.38**	[1.05, 1.80]	1.50**	[1.14, 1.97]	1.57***	[1.23, 2.00]
Non-employed	1.79***	[1.40, 2.30]	1.77***	[1.38, 2.26]	1.77***	[1.38, 2.28]	1.80***	[1.41, 2.30]
Marital status (referent category: married)								
Separated/divorced/widowed	1.25*	[0.95, 1.64]	1.12	[0.85, 1.49]	1.16	[0.86, 1.55]	1.22	[0.95, 1.58]
Single, never married	2.04***	[1.43, 2.92]	1.92***	[1.30, 2.83]	2.14***	[1.46, 3.13]	1.92***	[1.34, 2.76]
Number of children (referent category: one)								
Two	0.81**	[0.65, 1.01]	0.79**	[0.64, 0.99]	0.81**	[0.64, 1.01]	0.80**	[0.64, 1.00]
Three	0.77**	[0.60, 0.98]	0.74**	[0.57, 0.97]	0.75**	[0.57, 1.00]	0.76***	[0.60, 0.96]
Four	0.47***	[0.31, 0.72]	0.52***	[0.33, 0.82]	0.53***	[0.34, 0.82]	0.47***	[0.30, 0.73]
Five	0.48*	[0.23, 0.99]	0.49**	[0.27, 0.88]	0.64	[0.30, 1.34]	0.39***	[0.22, 0.69]
Parent service use	3.34***	[2.79, 4.00]	3.40***	[2.82, 4.14]	3.48***	[2.90, 4.18]	3.31***	[2.74, 3.97]
Ethnicity (referent category: White)								
South-Asian	0.50**	[0.29, 0.87]	0.74	[0.47, 1.18]	0.68	[0.34 , 1.32]	0.59**	[0.39, 0.88]
East-Asian	0.96	[0.62, 1.48]	1.06	[0.66, 1.66]	0.80	[0.39, 1.67]	1.04	[0.73, 1.48]
Black/Latino	0.58**	[0.38, 0.89]	0.50***	[0.31, 0.81]	0.48***	[0.28, 0.82]	0.55***	[0.36, 0.84]
Arab/West Asian	0.69	[0.35, 1.38]	1.78**	[1.07, 2.97]	0.82	[0.36, 1.90]	1.40	[0.87, 2.25]
Other	0.89	[0.55, 1.46]	0.77	[0.46, 1.30]	0.75	[0.41, 1.35]	0.87	[0.59, 1.35]
Level 3 covariates: neighbourhoods								
Population size (referent category: rural)								
Medium-small urban	0.92	[0.75, 1.13]	0.86	[0.66, 1.07]	0.87	[0.70, 1.10]	0.91	[0.74, 1.13]
Large urban	0.90	[0.65, 1.24]	0.81	[0.53, 1.23]	0.81*	[0.58, 1.13]	0.91	[0.72, 1.16]
Percent rent (referent category: <20%)								
20-39%	0.82	[0.61, 1.11]	0.86	[0.64, 1.17]	0.92	[0.67, 1.28]	0.80	[0.60, 1.06]
40-59%	0.61	[0.33, 1.15]	0.68	[0.34, 1.38]	0.61	[0.29, 1.29]	0.69	[0.38, 1.25]
>=60%	0.65	[0.32, 1.33]	0.66	[0.30, 1.45]	0.62	[0.27, 1.43]	0.68	[0.35, 1.34]
Percent lone family (referent category: low)								
Moderate	1.26	[0.95, 1.67]	1.26	[0.96, 1.65]	1.33	[0.99, 1.80]	1.21	[0.93, 1.57]
High	1.30	[0.73, 2.31]	1.15	[0.65, 2.03]	1.18	[0.66, 2.13]	1.21	[0.70, 2.11]

Percent non-educated (referent category: <10%)								
10-19%	0.91	[0.67, 1.24]	0.90	[0.65, 1.24]	0.94	[0.64, 1.36]	0.88	[0.68, 1.14]
20-29%	0.86	[0.61, 1.20]	0.90	[0.64, 1.27]	0.93	[0.62, 1.39]	0.84	[0.62, 1.13]
>30%	1.10	[0.68, 1.78]	0.97	[0.64, 1.47]	1.06	[0.68, 1.71]	1.02	[0.64, 1.62]
Percent poverty (referent category: <10%)								
10-19%	1.40**	[1.05, 1.86]	1.56**	[1.15, 2.13]	1.41*	[1.02, 1.95]	1.53**	[1.19, 1.97]
20-29%	1.65**	[1.08, 2.53]	2.11**	[1.24, 2.57]	1.99**	[1.11, 3.57]	1.81**	[1.20, 2.73]
>30%	1.58	[0.94, 2.63]	1.98	[1.05, 3.72]	1.60	[0.84, 3.04]	1.90	[1.15, 3.15]
Fixed part intercept	0.08***	[0.03, 0.14]	0.03***	[0.01, 0.07]	0.03***	[0.01, 0.06]	0.07***	[0.03, 0.16]
Random part intercept								
Var (_cons): Household	2.54	[1.96, 3.31]	2.79	[2.15, 3.63]	2.40	[1.85, 3.13]	2.88	[2.23, 3.64]
Var (_cons): Neighbourhood	0.02	[0.00, 5.76]	0.01	[0.00, 3.46]	0.04	[0.01, 0.28]	0.00	[0.00, 0.00]
Number of individuals		7584		7607		6252		8922
Number of households		4541		4576		3709		5399
Number of neighbourhoods		348		344		340		347

Note 1. OR=Odds Ratio; CI=Confidence interval; AIC=Akaike Information Criterion; BIC=Bayesian Information Criterion

Table 6c: Sensitivity Analysis: Changing prevalence cut-offs to determine elevated mental health problems

	Lowering cut-off value		Cut-off value set at prevalence rate		Increasing cut-off value	
	OR	[95% CI]	OR	[95% CI]	OR	[95% CI]
Immigrant Variables						
Immigrant status	1.13	[0.92, 1.38]	0.89	[0.70, 1.13]	0.83*	[0.63, 1.09]
Neighbourhood immigrant concentration	1.09**	[1.01, 1.19]	0.88**	[0.79, 0.98]	0.83***	[0.75, 0.93]
Immigrant x immigrant concentration	0.94	[0.85, 1.05]	1.07	[0.95, 1.21]	1.11	[0.97, 1.26]
Level 1 variables: individuals						
Female	1.22***	[1.11, 1.35]	0.70***	[0.62, 0.80]	0.75***	[0.65, 0.87]
Youth	1.20*	[1.08, 1.33]	0.79***	[0.68, 0.91]	0.85	[0.71, 1.00]
Level 2 variables: households						
Age of parent (referent category: <30 years old)						
30-39	0.74**	[0.55, 0.99]	1.61**	[1.09, 2.38]	1.49**	[0.95 , 2.34]
40-49	0.78***	[0.58, 1.04]	1.74***	[1.15, 2.62]	1.67***	[1.04, 2.71]
>50	0.73***	[0.52, 1.02]	2.01***	[1.28, 3.17]	1.80***	[1.06, 3.06]
Education (referent category: above bachelors)						
No education at institution	0.87	[0.57, 1.32]	1.22	[0.84, 1.79]	1.02	[0.57, 1.82]
High-school or less	0.91	[0.74, 1.13]	1.38	[0.85, 2.26]	1.07	[0.79, 1.45]
Trade/college/certificate	0.98	[0.79, 1.21]	1.14	[0.88, 1.48]	0.98	[0.71, 1.34]
Bachelors	0.86	[0.65, 1.12]	1.02	[0.78, 1.34]	1.17	[0.74, 1.85]
Household income (referent category: below $20,000 CAD)						
$20000-49999	0.95*	[0.73 , 1.26]	1.15	[0.81, 1.63]	1.39**	[0.96, 2.00]
$50000-79999	0.94	[0.66, 1.32]	1.23	[0.81, 1.88]	1.35	[0.87, 2.08]
$80000-109999	1.13	[0.85, 1.50]	1.13	[0.78, 1.63]	1.35*	[0.89, 2.05]
$110000-139999	1.23	[0.94, 1.61]	0.77	[0.54, 1.10]	0.82	[0.56, 1.21]
Labor (referent category: full-time employment)						
Part-time	0.79***	[0.66 , 0.93]	1.58***	[1.21, 2.06]	1.75***	[1.32, 2.31]
Self-employed	0.73*	[0.61, 0.86]	1.53***	[1.20, 1.95]	1.32	[0.96, 1.82]
Non-employed	0.64***	[0.53, 0.76]	1.78***	[1.41, 2.25]	1.92***	[1.50, 2.46]
Marital status (referent category: married)						
Separated/divorced/widowed	0.89***	[0.73, 1.10]	1.22*	[0.94, 1.57]	1.47***	[1.12, 1.94]
Single, never married	0.63***	[0.48, 0.82]	1.86***	[1.29, 2.67]	1.89***	[1.50, 3.10]
Number of children (referent category: one)						
Two	1.23***	[1.04, 1.45]	0.79**	[0.64, 0.98]	0.72***	[0.57, 0.91]
Three	1.35***	[1.11, 1.62]	0.73***	[0.58, 0.93]	0.71***	[0.55, 0.92]
Four	2.25***	[1.72, 2.94]	0.49***	[0.32, 0.72]	0.35***	[0.23, 0.54]
Five	2.57***	[1.80, 3.69]	0.42**	[0.25, 0.72]	0.37***	[0.19, 0.72]
Parent service use	0.38***	[0.33, 0.45]	3.53***	[2.93, 4.24]	3.71***	[3.05, 4.50]
Ethnicity (referent category: White)						
South-Asian	1.67	[1.19, 2.34]	0.64**	[0.44, 0.92]	0.88	[0.57, 1.37]
East-Asian	1.03	[0.77, 1.38]	1.04	[0.73, 1.49]	1.17	[0.78, 1.77]
Black/Latino	1.62*	[1.16, 2.25]	0.56***	[0.38, 0.82]	0.66	[0.42, 1.06]
Arab/West Asian	0.83	[0.57, 1.20]	1.40*	[0.92, 2.13]	1.53**	[0.89, 2.61]
Other	1.08	[0.75, 1.57]	0.79	[0.52, 1.21]	1.03	[0.61, 1.74]
Level 3 variables: neighbourhoods						
Population size (referent category: rural)						
Medium-small urban	1.11	[0.95, 1.31]	0.92	[0.74, 1.14]	0.88	[0.70, 1.12]
Large urban	1.17	[0.94, 1.45]	0.87	[0.50, 1.51]	0.91	[0.69, 1.19]
Percent rent (referent category: <20%)						
20-39%	1.18	[0.91, 1.52]	0.83	[0.62, 1.10]	0.99	[0.72, 1.37]
40-59%	1.50	[0.99, 2.28]	0.68	[0.38, 1.22]	0.74	[0.39- 1.41]
>=60%	1.32	[0.86, 2.03]	0.62	[0.33, 1.20]	0.64	[0.31, 1.29]
Percent lone family (referent category: low)						
Moderate	0.75*	[0.62, 0.90]	1.24	[0.94, 1.64]	1.35	[1.03, 1.77]

High	0.70	[0.50, 0.99]	1.25	[0.72, 2.15]	1.01	[0.56, 1.81]
Percent non-educated (referent category: <10%)						
10-19%	1.11	[0.87 , 1.41]	0.90	[0.68, 1.19]	0.95	[0.71, 1.26]
20-29%	1.10	[0.85, 1.43]	0.89	[0.66, 1.19]	0.99	[0.71, 1.37]
>30%	1.01	[0.77, 1.31]	1.09	[0.69, 1.73]	1.27	[0.79, 2.03]
Percent poverty (referent category: <10%)						
10-19%	0.83	[0.70, 0.99]	1.46**	[1.08, 1.99]	1.15	[0.85, 1.55]
20-29%	0.68**	[0.50, 0.92]	1.76**	[1.12, 2.75]	1.96***	[1.24, 3.11]
>30%	0.71**	[0.51, 1.00]	1.81	[1.04, 3.16]	1.98*	[1.13, 3.47]
Fixed part intercept	2.52***	[1.51, 4.20]	0.07***	[0.03, 0.14]	0.03***	[0.01, 0.06]
Random part intercept						
Var (_cons): Household	2.57	[2.10, 3.16]	0.00	[0.00, 0.00]	2.87	[2.13, 3.87]
Var (_cons): Neighbourhood	0.00	[0.01, 0.22]	3.01	[2.34, 3.87]	0.00	[0.00, 0.00]

Table 7a: Subgroup Analysis: factors associated with odds of using mental health services in the past 6 months within subgroups

	Removing Labour		Specialists		Disorder	
	OR	[95% CI]	OR	[95% CI]	OR	[95% CI]
Immigrant Variables						
Immigrant	0.64	[0.50, 0.83]	0.74*	[0.50, 1.09]	0.75	[0.48, 1.17]
Neighbourhood immigrant concentration	0.94	[0.85, 1.04]	0.96	[0.85, 1.08]	0.98	[0.85, 1.13]
Immigrant x immigrant concentration	0.93	[0.83, 1.04]	0.90	[0.75, 1.05]	0.92	[0.77, 1.10]
Level 1 variables: individuals						
Female	0.81	[0.71, 0.93]	0.87	[0.69, 1.08]	0.83*	[0.65, 1.06]
Behavioural or emotional problem	11.18	[8.21, 15.25]	12.34***	[9.60, 15.87]	-	-
Youth	1.00	[0.86, 1.16]	1.57***	[1.26, 1.97]	1.10	[0.84, 1.45]
Level 2 variables: households						
Age of parent (referent category: <30 years old)						
30-39	0.72	[0.44, 1.19]	0.96	[0.52, 1.79]	0.94	[0.36, 2.51]
40-49	0.65	[0.39, 1.09]	1.71*	[0.92, 3.20]	1.12	[0.41, 3.01]
>50	0.56	[0.30, 1.04]	1.93**	[0.97, 3.84]	0.84	[0.31, 2.28]
Education (referent category: above bachelors)						
No education at institution	0.86	[0.54, 1.38]	0.78**	[0.49, 1.22]	0.66	[0.40, 1.09]
High-school or less	0.82	[0.64, 1.05]	0.51	[0.24, 1.08]	1.13	[0.51, 2.50]
Trade/college/certificate	1.04	[0.81, 1.33]	0.77	[0.54, 1.10]	0.79	[0.52, 1.22]
Bachelors	0.78	[0.56, 1.08]	1.00	[0.71, 1.41]	0.88*	[0.56, 1.38]
Household income (referent category: below $20,000 CAD)						
$20000-49999	1.20	[0.87, 1.66]	0.87	[0.54, 1.40]	2.16***	[1.31, 3.55]
$50000-79999	1.11	[0.77, 1.61]	0.86	[0.53, 1.41]	1.22	[0.73, 2.05]
$80000-109999	1.25	[0.85, 1.83]	0.78	[0.47, 1.27]	2.48***	[1.28, 4.81]
$110000-139999	1.43	[0.99, 2.06]	0.92	[0.60, 1.40]	2.36***	[1.39, 4.01]
Labor (referent category: full-time employment)						
Part-time	-	-	1.64***	[1.16, 2.32]	1.09	[0.72, 1.65]
Self-employed	-	-	1.37*	[0.98, 1.92]	1.09	[0.72, 1.63]
Non-employed	-	-	1.50**	[1.09, 2.07]	1.60**	[1.11. 2.29]
Marital status (referent category: married)						
Separated/divorced/widowed	1.84	[1.43, 2.35]	2.25***	[1.59, 3.18]	1.62*	[1.06, 2.49]
Single, never married	1.71	[1.22, 2.39]	2.16**	[1.33, 3.53]	1.94**	[1.12, 2.34]
Number of children (referent category: one)						
Two	1.18	[0.93, 1.49]	0.96	[0.66, 1.39]	0.92	[0.63, 1.33]
Three	0.93	[0.72, 1.19]	1.24	[0.89, 1.72]	1.21	[0.78, 1.88]
Four	0.89	[0.58, 1.38]	0.63	[0.38, 1.07]	0.56	[0.27, 1.15]
Five	0.80	[0.45, 1.41]	1.51	[0.69, 3.27]	0.95	[0.42, 2.17]
Parent service use			2.10***	[1.66, 2.67]	2.44***	[1.77, 3.35]
Ethnicity (referent category: White)						
South-Asian	0.87	[0.56, 1.35]	0.28**	[0.13, 0.59]	0.24	[0.10, 0.56]
East-Asian	0.79	[0.54, 1.14]	0.43	[0.23, 0.80]	0.37	[0.20, 0.70]
Black/Latino	0.85	[0.59, 1.22]	0.69**	[0.39, 1.21]	0.89***	[0.46, 1.72]
Arab/West Asian	0.73	[0.41, 1.30]	0.28	[0.11, 0.73]	0.24**	[0.10, 0.56]
Other	0.81	[0.47, 1.38]	0.78	[0.34, 1.78]	0.51	[0.23, 1.13]
Level 3 variables: neighbourhoods						
Population size (referent category: rural)						
Medium-small urban	1.36	[0.94, 1.97]	0.89	[0.62, 1.28]	1.88**	[1.14, 3.11]
Large urban	0.86	[0.55, 1.35]	1.00	[0.66, 1.51]	0.90	[0.49, 1.64]
Percent rent (referent category: <20%)						
20-39%	1.14	[0.84, 1.56]	0.99	[0.66, 1.47]	1.43	[0.82, 2.50]
40-59%	1.11	[0.61, 2.04]	0.92	[0.45, 1.91]	1.31	[0.49, 3.50]

>=60%	1.30	[0.67, 2.55]	0.83	[0.37, 1.84]	1.28	[0.42, 3.92]
Percent lone family (referent category: low)						
Moderate	0.99	[0.76, 1.30]	1.28	[0.87, 1.88]	0.99	[0.63, 1.54]
High	0.97	[0.52, 1.80]	1.16	[0.64, 2.10]	0.58	[0.24, 1.38]
Percent non-educated (referent category: <10%)						
10-19%	1.20	[0.91, 1.58]	0.98	[0.68, 1.41]	0.85	[0.52, 1.37]
20-29%	0.98	[0.93, 2.33]	1.04	[0.67, 1.61]	0.84	[0.48, 1.46]
>30%	1.04	[0.70, 2.08]	1.34	[0.74, 2.42]	1.28	[0.64, 2.55]
Percent poverty (referent category: <10%)						
10-19%	1.44	[1.13, 1.83]	1.39	[0.96, 2.01]	1.74**	[1.09, 2.78]
20-29%	1.47	[0.93, 2.33]	1.26	[0.74, 2.14]	1.34	[0.71, 2.52]
>30%	1.20	[0.70, 2.08]	1.12	[0.60, 2.09]	1.28	[0.77, 3.85]
Fixed part intercept	0.11	[0.04, 0.29]	0.01***	[0.00, 0.02]	0.78***	[0.17, 3.62]
Random part intercept						
Var (_cons): Household	3.03	[2.47, 3.72]	2.99	[2.19, 4.10]	2.02	[1.01, 4.05]
Var (_cons): Neighbourhood	0.33	[0.20, 0.56]	0.00	[0.00, 0.00]	0.16	[0.00, 4.97]
Number of individuals				9504		2035
Number of households				5750		1641
Number of neighbourhoods				348		311

Note 1. OR=Odds Ratio; CI=Confidence interval; AIC=Akaike Information Criterion; BIC=Bayesian Information Criterion

Table 7b: Sensitivity Analysis: factors associated with odds of using mental health services in the past 6 months within subgroups

	Recent immigrants		Long-term immigrants		Refugees		Non-refugees	
	OR	[95% CI]	OR	[95% CI]	OR	[95% CI]	OR	[95% CI]
Immigrant Variables								
Immigrant	0.78*	[0.58, 1.04]	0.39***	[0.26, 0.59]	0.81	[0.50, 1.44]	0.60***	[0.46, 0.79]
Neighbourhood immigrant concentration	0.94	[0.85, 1.03]	0.95	[0.86, 1.05]	0.95	[0.86, 1.04]	0.95	[0.86, 1.05]
Immigrant x Immigrant concentration	0.95	[0.83, 1.08]	0.94	[0.82, 1.09]	0.87	[0.70, 1.07]	0.92	[0.82, 1.04]
Level 1 covariates: individuals								
Female	0.86**	[0.75, 0.99]	0.73***	[0.63, 0.85]	0.77***	[0.66, 0.89]	0.82***	[0.71, 0.94]
Mental health need	11.67***	[8.36, 16.31]	11.39***	[8.09, 16.03]	11.68***	[8.16, 16.72]	11.46***	[8.30, 15.82]
Youth	0.98	[0.83, 1.15]	1.04	[0.88, 1.23]	1.00	[0.84, 1.20]	1.02	[0.87, 1.20]
Level 2 covariates: households								
Age of parent (referent category: <30 years old)								
30-39	0.65	[0.38, 1.13]	0.73	[0.43, 1.23]	0.65	[0.36, 1.17]	0.73	[0.44, 1.32]
40-49	0.60	[0.34, 1.07]	0.64	[0.37, 1.09]	0.60	[0.32, 1.12]	0.66	[0.39, 1.10]
>50	0.49*	[0.25, 0.96]	0.48*	[0.26, 0.92]	0.47*	[0.20, 0.96]	0.55	[0.29, 1.03]
Education (referent category: Above bachelors)								
No education at institution	0.60***	[0.43, 0.83]	0.75**	[0.53, 1.07]	0.59**	[0.41, 0.84]	0.78*	[0.57, 1.07]
High-school or less	0.69	[0.42, 1.11]	0.74	[0.46, 1.19]	0.70**	[0.42, 1.14]	0.76	[0.47, 1.24]
Trade/college/certificate	0.71***	[0.71, 1.19]	0.83	[0.63, 1.08]	0.76	[0.58, 0.99]	0.82	[0.64, 1.05]
Bachelors	0.90	[0.70, 1.17]	1.10*	[0.83, 1.45]	0.93***	[0.70, 1.24]	1.05*	[0.81, 1.35]
Household income (referent category: below $20,000 CAD)								
$20000-49999	1.11	[0.77, 1.60]	1.34	[0.91, 1.95]	1.33	[0.89, 2.00]	1.17	[0.82, 1.67]
$50000-79999	1.09	[0.70, 1.69]	1.17	[0.77, 1.79]	1.39	[0.88, 2.19]	1.02	[0.68, 1.52]
$80000-109999	1.13	[0.75, 1.71]	1.29	[0.82, 2.02]	1.60*	[0.98, 2.60]	1.07	[0.72, 1.59]
$110000-139999	1.22	[0.81, 1.83]	1.43	[0.92, 2.21]	1.55*	[0.97, 2.48]	1.33	[0.90, 1.98]
Labor (referent category: full-time employment)								
Part-time	1.18	[0.88, 1.58]	1.06	[0.82, 1.38]	1.16	[0.87, 1.53]	1.06	[0.81, 1.38]
Self-employed	0.88	[0.68, 1.15]	0.88	[0.66, 1.19]	0.90	[0.67, 1.22]	0.88	[0.67, 1.14]
Non-employed	1.25**	[1.01, 1.55]	1.25*	[0.98, 1.58]	1.28**	[1.01, 1.62]	1.21*	[0.98, 1.49]
Marital status (referent category: married)								
Separated/divorced/widowed	1.74***	[1.33, 2.27]	1.81***	[1.35, 2.43]	1.83***	[1.34, 2.49]	1.83***	[1.43, 2.35]
Single, never married	1.46**	[1.01, 2.09]	1.44**	[0.99, 2.09]	1.59**	[1.07, 2.36]	1.49**	[1.06, 2.10]
Number of children (referent category: one)								
Two	1.12	[0.87, 1.44]	1.01	[0.76, 1.34]	1.01	[0.75, 1.35]	1.13	[0.88, 1.45]
Three	0.83	[0.64, 1.08]	0.83	[0.63, 1.10]	0.76	[0.57, 1.01]	0.92	[0.71, 1.20]
Four	0.85	[0.55, 1.32]	0.80	[0.49, 1.32]	0.81	[0.50, 1.30]	0.88	[0.56, 1.38]
Five	0.95	[0.48, 1.89]	0.59***	[0.32, 1.08]	0.71	[0.36, 1.39]	0.82	[0.43, 1.55]
Parent service use	2.97***	[2.48, 3.56]	3.12***	[2.58, 3.76]	3.16***	[2.61, 3.82]	3.05***	[2.55, 3.64]
Ethnicity (referent category: White)								
South-Asian	1.18	[0.65, 2.14]	0.93	[0.56, 1.54]	0.91	[0.41, 2.01]	0.91	[0.58, 1.42]
East-Asian	0.90	[0.58, 1.41]	0.85	[0.50, 1.43]	1.06	[0.48, 2.31]	0.81	[0.56, 1.17]
Black/Latino	0.79	[0.50, 1.23]	0.80	[0.50, 1.28]	0.64*	[0.39, 1.05]	0.82	[0.54, 1.24]
Arab/West Asian	0.77	[0.29, 2.02]	0.79	[0.40, 1.59]	0.52	[0.14, 1.89]	0.76	[0.41, 1.40]
Other	0.92	[0.51, 1.68]	1.09	[0.56, 2.13]	1.38	[0.67, 2.82]	0.80	[0.45, 1.44]
Level 3 covariates: neighbourhoods								
Population size (referent category: rural)								
Medium-small urban	1.40*	[0.97, 2.02]	1.28	[0.85, 1.94]	1.33	[0.87, 2.04]	1.36	[0.94, 1.96]
Large urban	0.94	[0.60, 1.44]	0.86	[0.52, 1.39]	0.94	[0.58, 1.52]	0.86	[0.55, 1.35]
Percent rent (referent category: <20%)								
20-39%	1.13	[0.81, 1.58]	1.13	[0.81, 1.56]	1.13	[0.80, 1.58]	1.13	[0.82, 1.58]

40-59%	1.07	[0.63, 1.81]	1.17	[0.63, 2.16]	1.25	[0.70, 2.21]	1.05	[0.58, 1.89]
>=60%	1.18	[0.65, 2.14]	1.55	[0.74, 3.28]	1.65	[0.82, 3.31]	1.17	[0.61, 2.59]
Percent lone family (referent category: low)								
Moderate	1.05	[0.81, 1.35]	1.02	[0.78, 1.34]	1.14	[0.87, 1.48]	0.97	[0.74, 1.28]
High	0.96	[0.54, 1.70]	0.99	[0.55, 1.76]	0.95	[0.56, 1.61]	0.96	[0.51, 1.78]
Percent non-educated (referent category: <10%)								
10-19%	1.27*	[0.96, 1.68]	1.05	[0.78, 1.42]	1.10	[0.80, 1.51]	1.21*	[0.92, 1.59]
20-29%	1.01	[0.71, 1.43]	0.87	[0.62, 1.22]	0.87	[0.61, 1.24]	0.99	[0.71, 1.39]
>30%	1.22	[0.71, 2.07]	0.88	[0.55, 1.41]	0.95	[0.58, 1.54]	1.12	[0.68, 1.83]
Percent poverty (referent category: <10%)								
10-19%	1.35**	[1.05, 1.73]	1.39**	[1.07, 1.81]	1.29	[0.99, 1.69]	1.44***	[1.11, 1.85]
20-29%	1.37	[0.88, 1.97]	1.24	[0.83, 1.86]	1.08	[0.75, 1.55]	1.53	[0.98, 2.39]
>30%	1.29	[0.63, 1.87]	1.20	[0.71, 2.01]	1.29	[0.80, 2.08]	1.25	[0.73, 2.14]
Fixed part intercept	0.15***	[0.05, 0.41]	0.14***	[0.05, 0.38]	0.14***	[0.05, 0.43]	0.12***	[0.05, 0.31]
Random part intercept								
Var (_cons): Household	2.68	[2.10, 3.43]	2.87**	[2.29, 3.61]	2.67	[2.06, 3.45]	2.96	[2.39, 3.67]
Var (_cons): Neighbourhood	0.24	[0.12, 0.48]	0.38***	[0.22, 0.64]	0.23	[0.10, 0.50]	0.31	[0.18, 0.54]
Number of individuals		7584		7607		6252		8922
Number of households		4541		4576		3709		5399
Number of neighbourhoods		348		344		340		347

Note 1. OR=Odds Ratio; CI=Confidence interval; AIC=Akaike Information Criterion; BIC=Bayesian Information Criterion

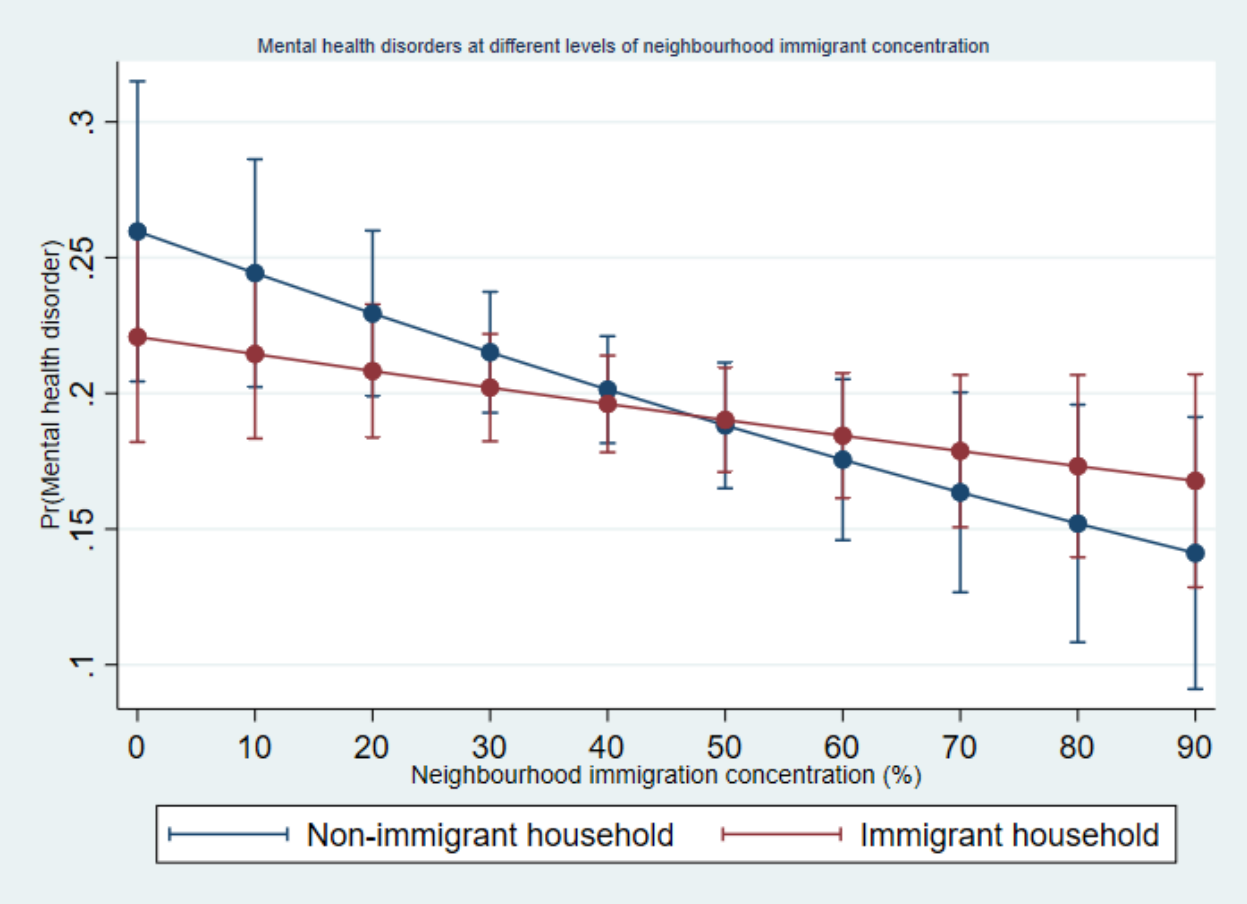


Figure 5: A graph illustrating the combined effect of neighbourhood immigrant concentration and household immigrant status on elevated mental health problems

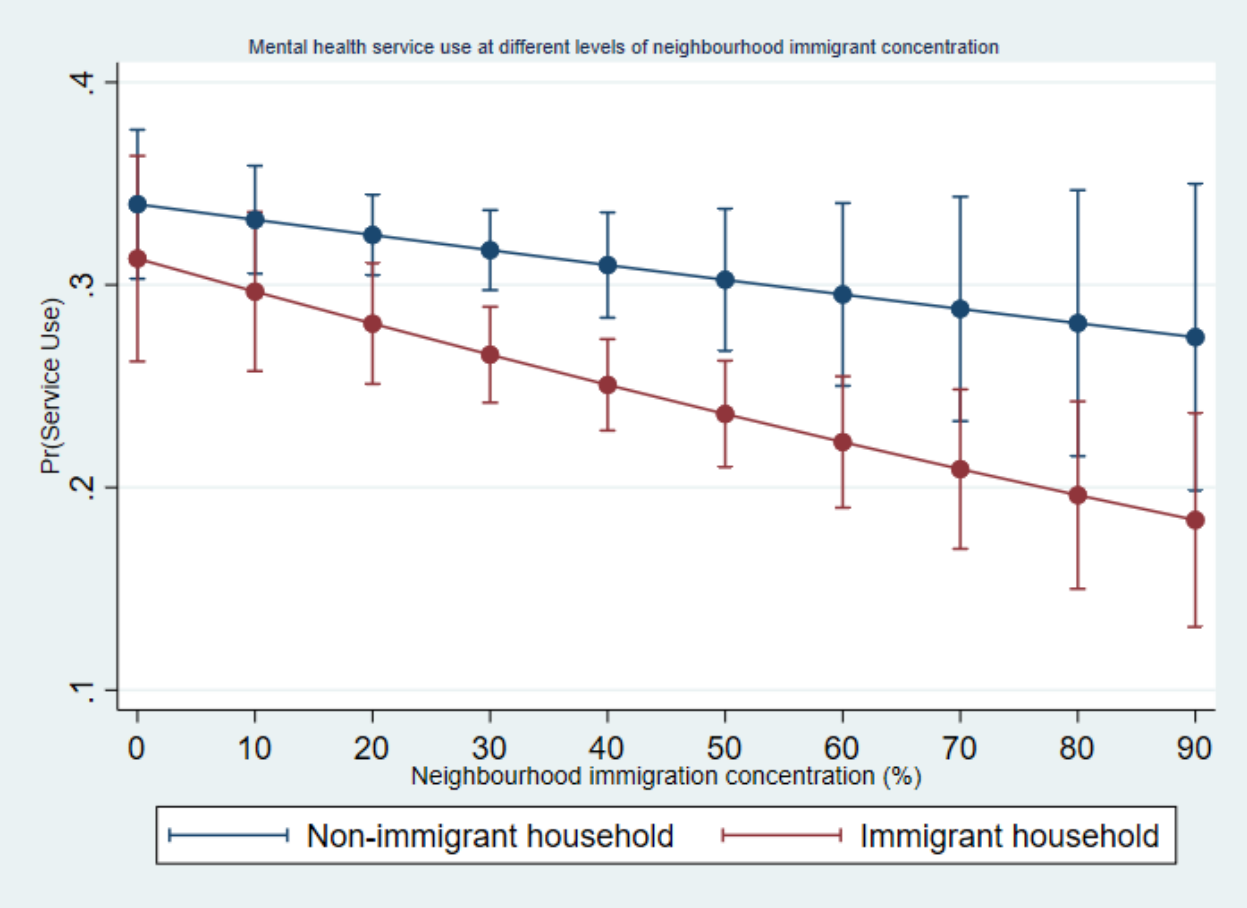


Figure 6: A graph illustrating the combined effect of neighbourhood immigrant concentration and household immigrant status on mental health service use

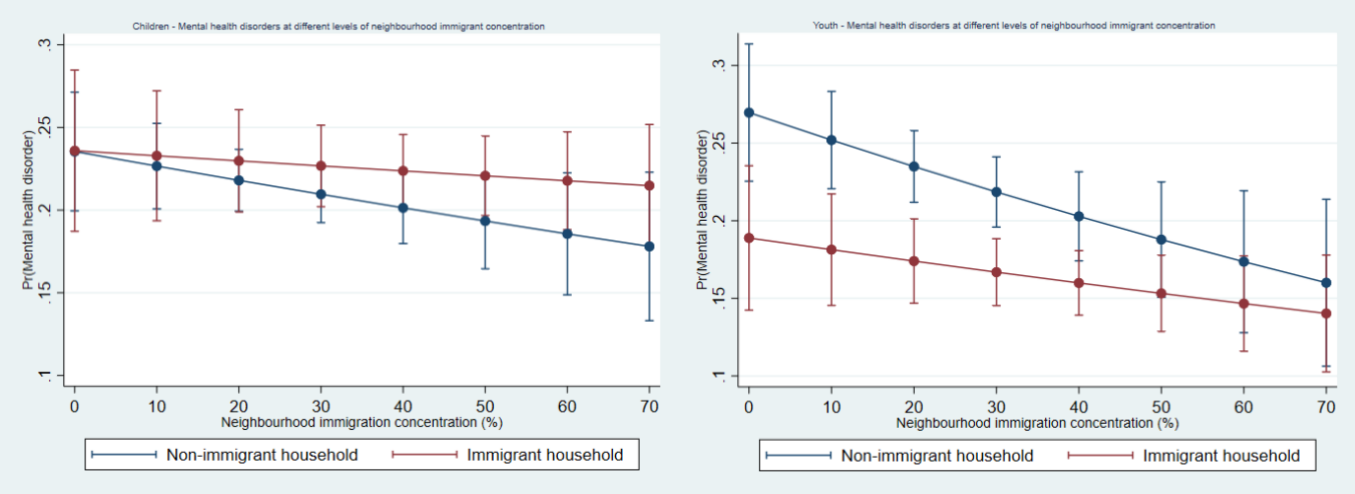


Figure 7: Combined effect of neighbourhood immigrant concentration and household immigrant status on elevated mental health problems in children versus youth

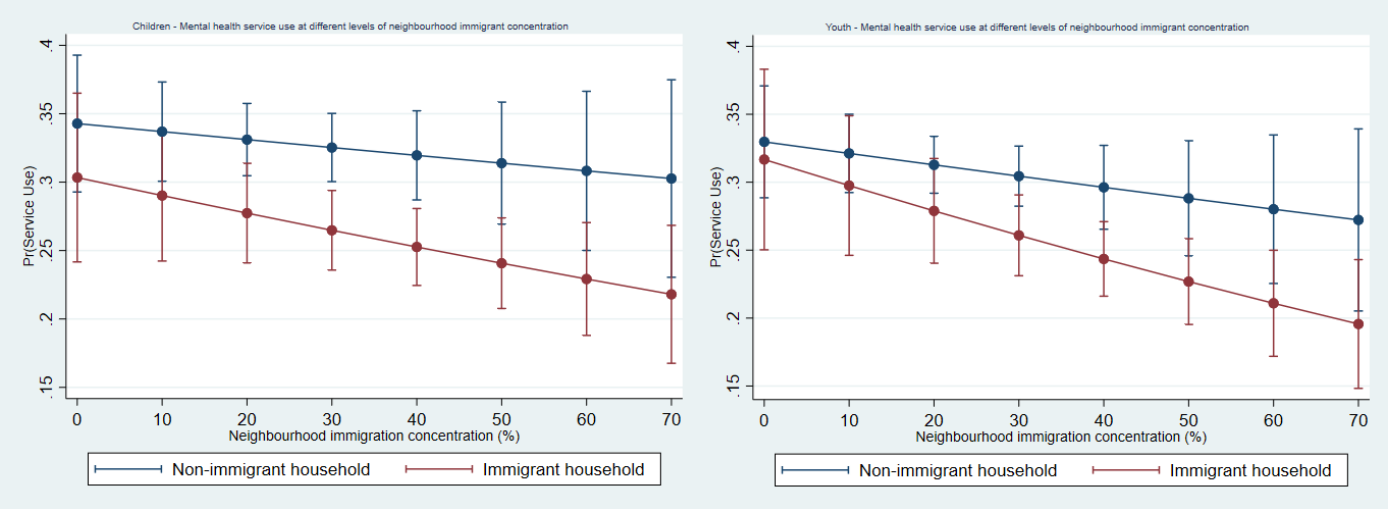


Figure 8: Combined effect of neighbourhood immigrant concentration and household immigrant status on elevated mental health services use in children versus youth

Appendix A1: Factors associated with the odds of having missing data

Variables	Odds Ratio	[95% Confidence Interval]
Household immigrant	0.90	[0.56, 1.45]
Household income		
$20000-49999	0.95	[0.56, 1.61]
$50000-79999	0.66	[0.36, 1.23]
$80000-109999	0.62	[0.32, 1.19]
$110000-139999	0.31	[0.17, 0.58]
Labor		
Part-time	1.05	[0.64, 1.73]
Self-employed	0.78	[0.45, 1.37]
Non-employed	0.60	[0.38, 0.96]
Ethnicity		
South-Asian	1.38	[0.73, 2.64]
East-Asian	3.02	[1.83, 4.99]
Black/Latino	0.56	[0.30, 1.06]
Other	0.95	[0.36, 2.51]
Highest education		
No education at institution	1.58	[0.95, 2.62]
High-school or less	1.67	[0.80, 1.07]
Trade/college/certificate	0.64	[0.39, 1.07]
Bachelors	0.64	[0.37, 1.10]
Mental health service use	1.13	[0.76, 1.67]
Marital status		
Separated/divorced/widowed	0.92	[0.56, 1.53]
Single, never married	1.68	[0.92, 3.07]
Age		
30-39	2.17	[0.85, 5.58]
40-49	1.86	[0.71, 4.88]
>50	1.77	[0.59, 5.32]
Number of children		
2	1.48	[0.86, 2.52]
3	1.21	[0.66, 2.23]
4	2.45	[1.28, 4.68]
_cons	0.01	[0.00, 0.03]
Number of observations	9657	

Chapter Three: Longitudinal impact of health shocks on income variables among immigrants in Canada: cardiovascular or cerebrovascular health shocks versus other types of health shocks

3.0 Abstract

Background: Stroke is known as the leading cause of adult disability in Canada and an estimated 35,000 cardiac arrests occur each year. Survivors of these health shocks can experience challenges in the labour market affecting their employment earnings. The financial impact of the shocks may be mitigated by other individual sources of income, governmental support, and family members who contribute to the total household income. Both theoretically and empirically, it is unclear what the overall effects of a health shock on income variables are, on average. Moreover, the size of the impacts of a cardiovascular or cerebrovascular health shock on earnings and income in the immigrant population may be heterogenous depending on individual-level characteristics.

Methods: A linked panel dataset was utilized that combined immigration and tax data from the Longitudinal Immigration Database and hospitalization data from the Discharge Abstract Database (DAD) for the years 2005 to 2015. Double robust estimation that combined propensity score matching with difference-in-differences analysis was conducted to estimate the causal impact of a cardiovascular or cerebrovascular health shock on four income variables (employment income, total income, governmental income, and household income) one to five years after the shock. The comparison group included those who were hospitalized for reasons other than a cardiovascular or cerebrovascular problem. Stratified analysis was conducted by sex, immigrant class, length in Canada, and regions of origin.

Results: The impacts of cardiovascular or cerebrovascular health shocks on income variables were no different than the impacts of other health shocks, across the years. Both economic and household income appeared to plateau after the health shocks (cardiovascular/cerebrovascular or not) while governmental income and total income continuously increased. Although conducting stratified analysis showed that the impacts were statistically not significant among the subgroups, income variables of individuals from the United States, refugees, and females appeared to be more sensitive to health shocks.

Conclusion: Understanding the labour supply decisions of individuals who undergo a health shock, as well as those of their family members, along with the impact on individual and household income is crucial to shaping return-to-work policies, financial interventions, as well as rehabilitation guidelines.

3.1 Introduction

3.1.1 Health shocks and income

Acute idiosyncratic health shocks (health events that occur unexpectedly) can have major consequences at the micro level not only on an individual's health and well-being, but also on their economic status. These sudden health events can result in an individual losing earnings if they reduce their number of hours worked, stop working entirely, or change their job position or employer because of their poor health (Alam and Mahal 2014; Currie and Madrian 1999; Fu et al. 2019; García-Gómez et al. 2013; Lenhart 2019). How their total earnings would be affected would not only depend on the severity of the health shock but also depend on their human capital and other sources of income such as rental income (Capatina, Keane, and Maruyama 2018). High-income individuals with multiple sources of income (e.g., rental income, investment income) may not experience a reduction in total income if their non-employment earnings increase after a health shock. Furthermore, health shocks may not only influence the labour supply of the person undergoing the shock but can also affect their family members'. If the main income-earner of the family experiences a health shock, an income loss may be experienced by their spouse and dependents (Jeon et al. 2020; Nascimento et al. 2021). The added worker effect states that to compensate the loss, family members may increase their labour supply. On the other hand, the caregiver effect states that family members may become caregivers and reduce their labour supply to take care of the sick family member (Jeon et al. 2020). Both theoretically and empirically, it is unclear what effect, on average, would dominate after a health shock (Charles 1999).

Moreover, the impact of health shocks on earnings has shown to be mitigated by institutions such as government-provided disability or employment benefits (García-Gómez 2011; Gustafsson-Wright, Janssens, and Van Der Gaag 2011; Lundborg, NilssonMartin, and Vikstrom 2015; Stepner 2019; Zimmer 2015), and private insurance may also play a role. In Canada, individuals may become eligible to receive governmental support to supplement their income (e.g., employment insurance benefits, social assistance income, etc.). With such policies in place, some individuals may decrease their labor supply in order to become eligible for government support that is provided to individuals of low income and/or disability (Lundborg, NilssonMartin, and Vikstrom 2015). On the other hand, some ill workers may be incentivized to return to work to receive disability insurance if their disability insurance program has a return-to-work condition (Bradley, Neumark, and Barkowski 2013; Zaresani 2018). Another form of governmental assistance that may mitigate income loss from health shocks is free health care. In Canada, medically necessary hospital services are free at point-of-care, resulting in lower out-of-pocket health care costs compared to countries where hospitals have high-associated costs for patients (Soril, Adams, and Phipps-Taylor 2014).

Understanding the labour supply decisions of individuals who undergo a health shock, as well as those of their family members, along with the impact on individual and household income is crucial to shaping return-to-work policies, financial interventions, as well as rehabilitation guidelines. This has been the motivation for a number of studies over the years. However, estimating the effect of health shocks on income robustly is complex due to issues such as the endogenous relationship between health and labour, biases that come with self-reported data, and unobserved preferences (Haan and Myck 2009).

3.1.2 Cardiovascular and cerebrovascular health shocks

Much of the literature on the impact of health shocks has been conducted in low-and-middle income countries, understandably so, given their high propensity to experience health shocks and higher economic instability (Alam and Mahal 2014; Essue et al. 2017). At the same time, a lot of literature has investigated the effect of accidents (Dano 2005; Halla and Zweimüller 2013) and long-term conditions such as cancer (Bradley et al. 2005; Heinesen, Imai, and Maruyama 2018). The current study, on the other hand, uses Canadian data, and focuses on stroke and heart attacks which are two of the leading causes of morbidity worldwide.

Every year, approximately 62,000 people with strokes and transient ischemic attacks are treated in Canadian hospitals (Boulanger et al. 2018). Stroke is the leading cause of adult disability in Canada - over 400,000 people were living with the effects of a stroke in 2015 (Krueger & Associates Inc. 2015). In addition, each year, an estimated 35, 000 cardiac arrests occur (Heart and Stroke Foundation n.d.). Canadian trends in hospitalization between 2007 and 2016 showed that hospitalizations due to heart failure and stroke increased by 25% and 20%, respectively (Botly et al. 2020). Although mortality associated with cardiovascular (diagnoses relating to the circulating system including the heart and blood vessels) and cerebrovascular (diagnoses in which an area of brain is affected by bleeding) events and diseases has declined greatly in the last 60 years in high-income countries as a result of improved technology, medication, education, and risk factor management, what has become a priority is improving the quality of life of survivors (Mensah et al. 2017). Also, a higher percentage of younger adults are experiencing heart attacks and strokes, increasing the associated lifetime costs. On top of health and health care consequences, cardiovascular and cerebrovascular health shocks are economically costly due to foregone employment and costs associated with lifelong disabilities. The estimated costs of strokes alone to the economy were $3.6 billion in 2015, and that amount did not include the cost of informal care provided by family members (Krueger & Associates Inc. 2015). The Economic Burden of Ischemic Stroke (BURST) Study that followed a cohort of ischemic stroke patients across Canadian stroke centres found the average annual cost per stroke survivor was $74,353; $107,883 for disabling strokes and $48,339 for non-disabling strokes (Mittmann et al. 2012). In addition, the motivation to focus on cardiovascular and cerebrovascular health shocks stems from them being sudden and unexpected, as well as severe with associated long-term functional impairments. They provide an excellent source of exogenous variation (exogenous variable is external to the model and explains the other variables in the model) to be able to study the impact of a common health shock on earnings and income, resulting in interest in this specific research area to grow recently (Garland et al. 2019a; Jones, Rice, and Zantomio 2020; Tanaka 2021; Trevisan and Zantomio 2016).

3.1.3 Heterogenous effects of health shocks in immigrants

The size of the impacts of cardiovascular or cerebrovascular health shocks on earnings and income are reported to differ depending on the type of event, individual-level characteristics, and outcomes studied (Fu et al. 2019; Howard et al. 1985; Lundborg, NilssonMartin, and Vikstrom 2015). Garland et al. (2020), who studied the impact of acute cardiovascular shocks on employment income in hospitalized patients in Canada, showed that the effects of such shocks were larger

among those of older age, lower baseline earnings, and who had a comorbid disease, longer hospital stay, and requirement for mechanical ventilation during their hospital stay (Garland et al. 2019a). Another study showed that women were more likely to leave employment following acute hospitalization (the authors did not differentiate between various types of hospitalizations) than were men (García-Gómez et al. 2013). After stratifying the sample by levels of household income, the researchers also showed that the probability of remaining at work two years after hospitalization was reduced by 9.3 percentage points for those in the poorest quartile compared with a decrease of 5.5 percentage points for those in the richest quartile (García-Gómez et al. 2013).

The literature investigating how the immigrant population economically respond to health shocks (not cardiovascular/cerebrovascular events specifically) is sparse in high income countries (A. Islam and Parasnis 2017). A study conducted in Australia examined whether health shocks affected immigrants and native-born individuals differently (Islam and Parasnis 2017). Although they did not study the effect of a health shock on employment income, interestingly, they found that a decline in health status decreased savings of migrants by 13% while native-born Australians saw a decrease of only 3.6% (Islam and Parasnis 2017). It raises the question of whether the impact of a cardiovascular or cerebrovascular health shock on employment income may differ between immigrant and Canadian-born populations. Variability within immigrant subgroups may also arise as a result of different employment and economic circumstances, underlying differences in culture, attitudes towards risk, pre-existing economic and health care barriers experienced by some immigrant subgroups, and the fact that some ethnic subgroups have a greater cardiovascular risk than others (Islam and Parasnis 2017; Tu et al. 2015). Since immigrant class of admission has been frequently reported to be correlated with labor market performance (Akresh 2006; Mueller and Truong 2022; Sweetman and Warman 2013a) one can also expect that immigration class influences economic outcomes in those experiencing a health shock. Immigrants who enter Canada through economic class may have different economic outcomes than those who enter through family-class or refugee class because of their accumulation of human and social capital (Hansen, Fuentes, and Aranda 2018; Sweetman and Warman 2013b).

Statistics show that the risk of a cardiovascular health shock is high among immigrant groups in high-income countries (Okrainec et al. 2015; Sohail et al. 2015). More so, longitudinal studies show that this risk increases in migrants with time in the destination country (Sohail et al. 2015; Tu et al. 2015). To prevent the cycle of poor economic status and poor health, it is important to understand immigrants' labor responses to cardiovascular and cerebrovascular health shocks and subsequently design policies to aid individuals and households experiencing them. Previous studies that have investigated the impact of cardiovascular and/or cerebrovascular health shocks on economic outcomes in the Canadian context did not address immigrant populations, only looked at the short-term effects of shocks (i.e., three years in Garland et al.), focused exclusively on employment outcomes, or used cross-sectional self-reported data (Garland et al. 2019b; Vyas et al. 2017, 2019). A problem with self-reported data in particular is that it may have led to inaccuracies in the income and health measures (Althubaiti 2016; Osler et al. 2014). The present study filled these research gaps by studying various long-term income effects (before tax employment income, government income, total income, and household income) of cardiovascular and cerebrovascular events in a large sample of immigrants, and explored whether the effects were heterogeneous by conducting stratified analysis by sex, immigration categories, duration in

Canada, and regions of origin, using Canadian hospital and tax-based administrative data. This study is also unique in that it compared the effect of cardiovascular or cerebrovascular health shocks to all other types of health shocks (except for maternity-related shocks), since the comparison group included individuals who were hospitalized for other reasons. This study extended the "health shock and income" literature which has usually focused on single health shocks, limiting the ability to study whether income variables of survivors are impacted differently on average, depending on the type of shock. Blakely et al. (2021), using longitudinal data, showed that income losses varied considerably by type of disease (Blakely et al. 2021). Also, notably, they reported that cardiovascular disease along with mental illness and musculoskeletal diseases caused the greatest loss. In this study, I also hypothesized that cardiovascular and cerebrovascular health shocks caused greater loss in employment and total income compared to other types of shocks.

3.2 Methods

3.2.1 Data source

I used linked data from the Longitudinal Immigration Database (IMDB) and Discharge Abstract Database (DAD) for the years 2005 to 2015. The linkage of these two longitudinal administrative databases was conducted by Statistics Canada with approximately 22% of eligible individuals in the IMDB (i.e., immigrated to Canada between 1980 and 2013, have a hospitalization record, and live outside of Quebec. The remaining percentage did not meet the eligibility criteria) linked to at least one DAD record (to read more about the linkage and datasets, see: https://www.statcan.gc.ca/en/microdata/data-centres/data/liddad). The IMDB combined information from immigrant landing files of all immigrants who migrated to Canada between 1980 and 2013 collected by Immigration, Refugees and Citizenship Canada (IRCC), and yearly tax information obtained from the Canada Revenue Agency's T1 Family Files. The DAD dataset was a census of hospital discharges from publicly funded hospitals in Canada excluding Quebec, and included demographic, administrative and clinical data for all inpatient hospitalizations. From merging these datasets, each included individual had multiple years of recorded tax and hospitalization data, which allowed this panel to be followed over time.

3.2.2 Variables

Independent variable

The main independent variable of interest was the occurrence of a cardiovascular or cerebrovascular event, which I refer to in this paper as a health shock. It was coded as 1 if an individual suffered from one of the following health shocks for the first time between 2010 and 2013, and 0 otherwise: atrial myocardial infarction, stroke, cardiac arrest, cerebral infarction, intracerebral hemorrhage and heart failure. These six shocks were selected after reviewing Garland et al. (2020)'s methods as well as speaking to a cardiologist in practice. Diagnoses were identified using codes classified in International Classification of Diseases 10th version (ICD-10; see Table 1). The MetaData file can be found at http://www.cihi.ca/en/types-of-care/hospital-care/acute-care/dad-metadata. Furthermore, since up to 25 diagnoses were made during one hospitalization event, I focused on identifying cardiovascular and cerebrovascular events from the variable coded as the main patient service (the service that the patient was treated for the longest period of time

during their stay), as well as the first five reported diagnosis codes. If an individual had several health shocks between the years of 2010 and 2013, I focused solely on the first shock. I also excluded individuals who had a shock between the years of 2007 and 2009, as I wanted to ensure that I was not seeing the effect of multiple cardiovascular and/or cerebrovascular events. The term "index year" was used to indicate the year of the shock (or year of hospitalization event for those in the comparison group), and was labelled "t". I identified the year prior to the shock as t-1, the year after the shock as t+1, and so on.

Outcome variables

I focused on four outcome variables: individual employment income, individual government income, individual total income, and family total income. Individual employment income was defined as total employment earnings from T4 slips before taxes. The variable included income from wages, salaries and commissions, other employment income, net business income, net professional income, net farming income, net fishing income, and net self-employment income. Individual government income included income from Old Age Security pension, Canada Pension Plan benefits, employment insurance benefits, child benefits, and other government transfers. Canada Child benefits were monthly payments provided to eligible families to help with the cost of raising children under the age of 18. They were administered to one person out of the household, who was usually the primary caregiver. Furthermore, individual total income was calculated to be the summation of individual employment income and individual government income. Lastly, household total income was the summation of total income of all individuals in a household who filed taxes. To address zero or negative values, as is common with individuals who were unemployed or had negative self-employment earnings, I added $100 to all observations. Before doing so, negative earnings were coded to $0. I used the 2021 Consumer Price Index to inflate all income values to Can $2021. I also put a cap on the maximum income values where any values higher than the 95th percentile were made to equal the 95th percentile. Notably, the IMDB dataset initially only included individuals who received immigrant status in 1980 or onwards and had filed at least one tax return after landing in Canada. But, in 2012, coverage in IMDB expanded to also include individuals who filed tax returns prior to landing. To keep data only on immigrants who were earning while residing in Canada (i.e., permanent residents), I only included observations from taxes filed after landing and not prior.

3.2.3 Study cohort

To study the causal impact of a cardiovascular or cerebrovascular health shock in year t, I excluded patients who had a cardiovascular or cerebrovascular health shock during the three years preceding t. I then restricted the population to be those of working age (18 to 60 years old) in year t. I excluded those above 60 knowing that older individuals may become motivated to retire early after experiencing a health shock (29). I also limited the sample to those who were employed for at least two years prior to the index year indicated by non-zero employment income because I wanted to see the effect of the shock on those who were in the workforce, and avoid the problem of reverse causality. Lastly, I excluded individuals who were hospitalized for pregnancy and child labour outcomes during years t or t-1 with the understanding that these individuals may have reduced their labour outcomes during this time.

The treatment group ultimately included individuals who had their "first" cardiovascular or cerebrovascular health shock in year t (i.e., had their first shock as evidenced by the available data. They may have had a shock earlier that was not captured in the dataset), were of working age in year t, and were employed in years t-1 and t-2. The comparison group satisfied the same criteria as the treatment group, except that they were not hospitalized for a cardiovascular or cerebrovascular problem, but for another reason in year t. They also did not experience a cardiovascular or cerebrovascular problem in t-1 and t-2. Since the individuals in the comparison group could have visited the hospital on a number of occasions for various reasons, I randomly selected one hospitalization data point for each individual and removed observations for other hospitalization records. Please note that the individuals in the comparison group also experienced a shock, as they were hospitalized for reasons other than cardiovascular or cerebrovascular problems. In this study, however, where possible, I referred to the treatment group as those who experienced a "health shock" and the comparison group simply as controls, for ease of reading comprehension. Using these methods, in the final dataset, I had one hospitalization observation per individual. Moreover, twelve people were missing data for the highest education variable. Given that they made up less than 1% of the sample, they were dropped from the analysis. I also dropped the few individuals who were from the territories, who may have had different health care and economic experiences compared to those who were from more populous provinces.

3.2.4 Empirical strategy

The main objective of this study was to utilize a panel dataset to study the impact of a cardiovascular or cerebrovascular health shock on employment income compared to a non-cardiovascular/cerebrovascular health shock, one to five years post-shock. The secondary objectives were to see the effects on governmental income, total income, and total household income, which included income of the spouse.

In alignment with several studies that look at the impact of a health shock on income variables (García-Gómez et al. 2013; Garland et al. 2019a; Jones, Rice, and Zantomio 2020; Lenhart 2019), I conducted double robust estimation that combined propensity score matching with difference-in-differences analysis. The average treatment effect on the treated was identified after adjusting for all observed covariates that may have influenced whether an individual experienced the shock and/or the outcomes, using the propensity score. By doing so, I was able to assume that the treatment and comparison groups had similar characteristics prior to the shock and that any differences between the two in the outcomes were because of the treatment effect that was independent of the error term. The covariates that were included in matching were diverse and comprehensive and were selected after reviewing the literature. Omitted variables were likely not a major concern because they needed to be time-varying, not correlated with included variables, and different across treated and comparison groups. With a comparison group that acted as a plausible counterfactual for the treatment group, I was then able to make causal interpretations.

Propensity scores were estimated using a cross-section of the data one year prior to the health shocks (t-1). The propensity scores were obtained using logistic regression that estimated the probability that individuals experienced a health shock. That is:

$$p(x) = \Pr(shock_{it} = 1 | X_{t-1})$$

where p(x) was the propensity score, shock was a binary variable where it was set to one if an individual experienced a cardiovascular or cerebrovascular health shock in year t and zero otherwise. The matrix X included all variables that were known to influence the relationship between cardiovascular or cerebrovascular health shocks and income variables such as age and sex. Multiple specifications of the matching model were tested comparing the balancing of covariates of interest. The final model included age, marital status, duration in Canada, highest education, immigration categories, source country, province of hospitalization, presence of children under the age of five, and employment, governmental, and household income two years prior to shock. Interaction variables were also added to the model where sex and age were interacted with the other variables. The logistic regression coefficients obtained from doing propensity score matching with employment income as the outcome variable are presented in the appendix. I followed guidelines on propensity score matching and attempted to be non-parsimonious in model building (Imbens 2015). Local linear regression matching was utilized with a normal kernel and a bandwidth of 0.1. Sensitivity tests using alternative bandwidths and kernel types resulted in no substantive changes in the estimates (results not shown).

Beyond these observable characteristics, people may have still differed on other unobserved characteristics such as health behaviour and genetics. Due to this reason, matching results were then used in difference-in-difference analysis that compared changes in income before and after the shock for those who experienced a cardiovascular or cerebrovascular health shock (i.e., treatment group) to the same changes for those who did not experience a cardiovascular or cerebrovascular health shock (i.e., comparison group). The propensity scores were used as weights in panel fixed-effects regression models where those who were in the treatment group received a weight of one and those who in the comparison group were reweighted by their probability of experiencing a health shock (i.e., their propensity score).

The panel fixed-effect structure for the four regressions was

$$Y_{i,t} = \alpha_i + \gamma_{i,t-1} + \Delta\gamma_{i,t,t\neq-1} + \Delta\gamma_{i,t,t\neq-1} * Shock + \varepsilon_{i,t} \qquad [t=-3, \ldots\ldots, +5, t \neq -1]$$

where $Y_{i,t}$ was employment income (or governmental income, total income, and household income) for individual i in time t where t ranged from -3 (representing three years pre-shock) to +5 (representing five years post-shock). The term $\gamma_{i,t-1}$ was the intercept representing the income of both the treatment and comparison group at t-1 and α_i was the individual-level fixed effects. The term $\Delta\gamma_{i,t,t\neq-1}$represented the difference in income between year t and t-1. The average treatment effect was denoted by $\Delta\gamma_{i,t,t\neq-1} * Shock$. Essentially, the effect can be interpreted as the average difference in income between the treatment and comparison group in year t compared to t-1. Lastly, $\varepsilon_{i,t}$ was an error term. I used heteroskedasticity-consistent robust standard errors and tested for 90%, 95%, and 99% statistical significance. Also, it must be noted that t could not equal to -1 which represented one year prior to the shock as it was the referent year in the regressions and was set to be equal in the treatment and comparison groups using the matching process. Figure 2 shows the estimates graphically using employment income as an example.

By exploiting the longitudinal nature of the dataset and using a difference-in-difference identification strategy, I was able to control for fixed unobservable characteristics. At the same

time, I was able to state that conditional on the observables, in the absence of a cardiovascular or cerebrovascular health shock, the income trends in the treatment group would have been the same as seen in the comparison group. Importantly, the use of both propensity-score matching and difference-in-differences analysis in the form of reweighted fixed effects models ensured robustness in the analysis (as long as one of the two models was correctly specified), without having to make any functional form assumptions.

Suspecting that the effect of the cardiovascular or cerebrovascular health shock may have been influenced by personal and immigration-level characteristics, I also conducted multiple subgroup analyses using reweighting methodology. Specifically, I stratified the data by immigration categories, sex, duration, and source region and ran the same regression models within each subgroup. To descriptively visualize how the income variables varied across time for those who experienced cardiovascular or cerebrovascular events and those who did not, I also created a series of time-series plots that graphed average incomes. All statistical analyses were performed using Stata17.0 software.

3.3 Results

3.3.1 Description of sample

Results from the propensity score logistic regression with employment income as the outcome variable is presented in the appendix. The distribution of the propensity scores is illustrated in Figure 1, and reflect the propensity of individuals to have experienced a cardiovascular or cerebrovascular health shock. There were 1595 eligible individuals who experienced a cardiovascular or cerebrovascular health shock (treatment group) and 24,195 individuals who did not and were treated as controls. I was able to find a match for all treated individuals except for one person who was dropped from all analyses. Table 2 shows the results from covariate imbalance testing, specifically the means of the variables used in matching, before and after the matching process (results from the interactions are not shown). It shows that there was substantial reduction in percentage bias (close to 100%) in all variables (percent bias is the percent difference of the sample means in the treated and non-treated subsamples as a percentage of the square root of the average of the sample variances in the treated and non-treated groups) after matching, implying that matching was effective.

The sample was balanced in terms of sex (48% female). The majority of individuals were married (66%) followed by single (i.e., not married) (24%). In terms of highest education, 38% had high-school training or less, 37% had completed trades or a diploma program, 6% had their Bachelor's degree, 15% had done a postgraduate program with no degree, and 4% had their postgraduate degree. Approximately 33%, 18%, and 49% of the sample had entered Canada via family, refugee, and economic class routes, respectively. The majority of the sample was from East Asia (32%) followed by Europe or Australasia (25%) and South-East Asia (16%). The majority had been hospitalized in Ontario (66%). Sixteen percent of the sample had children under the age of 5.

While I cannot completely rule out differences between the two groups, I found no statistically significant difference in their "pre-shock" income trends (Table 3) providing confidence in the identification strategy and that the common trend assumption (i.e., treatment and comparison

group would have had the same outcomes in the absence of treatment) of difference-in-differences analysis was met. Reasons for hospitalization among the comparison group are provided in Appendix B2. Briefly, the majority of individuals were hospitalized for digestive issues (17%) followed by neoplasm (13%) and genitourinary reasons (11%). Fewer individuals were hospitalized for events that are known to be severe such as infection (2%), mental health problems (2%), and injury (8%).

3.3.2 Effect of cardiovascular and cerebrovascular health shock on earnings and income in immigrants

Table 3 shows the coefficients and their 95% confidence intervals from the fixed-effects models where the dependent variables were employment income, governmental income, total income, and household income. The coefficient on t+1 for Panel A can be interpreted as the difference in income between years t-1 and t+1 for the comparison group. The results showed that those who experienced a non-cardiovascular or non-cerebrovascular health shock experienced a loss of $399 [95% CI: -740, -58] one year post-shock compared to one year pre-shock. The amount of the loss kept increasing year to year and in year five, those in the comparison group had employment income that was $866 [95% CI: -1422, -350] lower than one year prior to the shock (t-1). Results also showed that total income continuously increased from t+1 to t+5. In t+5, total income was $2164 [95% CI: 1657, 2672] higher than total income in t-1. Government income also increased year-to-year after the shock. On the other hand, total amount of household income decreased [-$426, 95% CI: -1288,436 in t+3, -$803, 95% CI: -1743, 138 in t+4, and -$1128, 95% CI: -2140, -115 in t+5].

The coefficient on t+1 for Panel B in Table 3 can be interpreted as the difference in income between individuals who experienced a health shock and those who did not, between the years of t-1 and t+1. The coefficient on t+2 represents the difference two years after the shock compared to one year prior to the shock (t-1) and so on. Overall, the results showed that many of the coefficients for Panel B were not statistically different from zero, implying that the impact of a cardiovascular or cerebrovascular health shock on income variables of immigrants was no different than the impact of other health shocks on the controls, across the years. Although not statistically significant, it was seen that compared to immigrants who did not experience a cardiovascular or cerebrovascular health shock, those who experienced the shock had $440 [95% CI: -780, 1659] more employment income one year after the shock compared to one year prior to the shock. The difference in employment income increased each year after the shock and in year five, the difference in employment income was $1436 [95% CI: -383, 3255]. A similar trend was seen for total income where difference in earnings for treated individuals between one year prior to the shock and one year, two years, three years, four years, and five years after the shock was $424 [95% CI: -822, 1672], $416 [95% CI: -985, 1817], $796 [95% CI: -745, 2337], $1320 [95% CI: -311, 2953], and $1794 [95% CI: 6, 3582], relative to the comparison group, on average.

Furthermore, relative to the comparison group, on average, those who experienced a health shock had $65 [95% CI: -201, 332] more governmental income one year after the shock, and then had lower governmental income in years t+2 [-99, 95% CI: -370, 171], t+3 [-145, 95% CI: -432, 142], t+4 [-$93, 95% CI: -405, 220] and t+5 [-$94, 95% CI: -440, 251]. On the other hand, the results showed that while those who experienced a shock had slightly lower household income one year

and two years after the shock, household income was on average greater in the treatment group than in the comparison group in years t+3 [$648, 95% CI: -2247, 3543], t+4 [$867, 95% CI: -2343, 4077] and t+5 [$1820, 95% CI: -1685, 5325]. Again, all coefficients except for the coefficient on t+5 for the total income dependent variable were statistically not significant with wide confidence intervals.

Plotting the various income outcomes over time visually showed the same results as the regressions in that there was no noticeable statistically significant difference between the treatment and comparison groups (Figure 3). The graphs also visually showed that: 1) employment income which was increasing year to year prior to the shock decreased after the cardiovascular or cerebrovascular health shock. It then slightly increased and then plateaued, 2) governmental income increased after the shock for both the treatment and comparison groups, 3) total income very slightly decreased immediately after the cardiovascular or cerebrovascular health shock, and 4) household income had an increasing trajectory prior to the shock. After the shock, household income decreased and then plateaued for the treatment group while it started to decrease even further for the comparison group starting at t+2, however, the decrease was not by large amounts. Also, results showed that although both the treatment and comparison groups showed similar income trends, the income trajectory was worse for the comparison group than it was for the treatment group.

3.3.3 Stratified results

Stratified analysis by the various variables showed differences in the coefficients between the groups, as discussed below, but it is important to note that many of the coefficients were not statistically significant and the confidence intervals were very wide. That being said, for males who experienced a cardiovascular or cerebrovascular health shock, the difference in employment income between the treatment and comparison groups increased each year, with employment income increasing in the treatment group (Table 4). More specifically, one year after the shock, males who experienced a health shock had $1688 [95% CI: -115, 3491] more employment income than they did one year prior to shock, on average, relative to the comparison group. This effect was statistically significant at the 10% level. In t+5, the difference was even higher, at $2100 [95% CI: -642, 4842] but the effect was not statistically significant. On the other hand, females who experienced a cardiovascular or cerebrovascular health shock had lower employment income than females in the comparison group for years t+1 [-$840, 95% CI: -2461, 781], t+2 [-$781, 95% CI: -2593, 1032], t+3 [-$578, 95% CI: -2641, 1484], and t+4 [-$291, 95% CI: -2447, 1866] while income was $999 [95% CI: -1363, 3361] higher in year five compared to one year prior the shock, relative to the comparison group, on average. This trend was evident in Figure 4 as well. A similar trend was seen for total household income. Households in which males had a cardiovascular or cerebrovascular health shock had their household income increase each year post-shock. For instance, the average household income for families in which a male experienced a cardiovascular or cerebrovascular health shock was $95,991 (referent) in t-1 and $98919 ($95991+$17+$2911) in t+5. Households with females who experienced a cardiovascular or cerebrovascular health shock, on the other hand, saw a reduction in earnings [$96360 (referent) in t-1 and $94757 ($96360-$2137+$434) in t+5]. In terms of governmental income, regression results showed that males experiencing a shock had lower governmental income post-shock compared to male controls whereas there was no large difference between females. Graphically, it was seen that for both males and females who experienced any type of shock, governmental income increased after t+2,

albeit, the increase was greater in females. Overall, comparing across the four income variables, the difference in income values between the treatment and comparison groups was larger for males than females.

When the sample was stratified by immigration class, it was seen that the greatest change in income was experienced by refugees who had a cardiovascular or cerebrovascular health shock (Table 5) whereas there was no large difference between the treatment and comparison group in either the economic or family classes. For instance, in t+5, refugees who experienced health shock had $3730 [95% CI: -110,7571] more employment earnings than in t-1, relative to control refugees. The difference was $3588 [95% CI: 360, 6815] and $3529 [95% CI: 124, 6931] in t+3 and t+4, respectively, and was statistically significant. On the other hand, economic-class and family-class immigrants who experienced a shock had employment income that was only higher by $1208 [95% CI: -1692, 4107] and $497 [95% CI: -2259, 3252] in t+5, respectively. The effects were not statistically significant in the economic and family class subgroups either. Figure 5 also visually showed how relative to economic class and family class migrants, income variables of refugees were slightly more sensitive to a cardiovascular or cerebrovascular health shock.

Differences in the coefficients were also evident between recent immigrants and long-term immigrants (Table 6). For instance, recent immigrants saw a smaller difference in employment income in years t+4 and t+5 between those who experienced a cardiovascular or cerebrovascular health shock and those who did not [$-809, 95% CI:-4917, 3300] in t+4 and -$619 [95% CI: -4540, 3302] in t+5 whereas the difference between the treatment and comparison group was larger among long-term immigrants ($1451, 95% CI:-357, 3259] in t+4 and $1961 [95% CI: -59, 3981] in t+5. Likewise, the difference between the treatment and comparison groups in total income was larger among long-term immigrants (difference of $2135 [95% CI:155,4116] in t+5) than among recent immigrants (difference of $701 [95% CI:-3254,4656] in t+5). The largest difference between recent and long-term immigrants was seen in the variable of household income. Households in which a recent immigrant experienced a cardiovascular or cerebrovascular health shock had $8275 [95% CI: -14759,-1790] and $5608 [95% CI: -13704, 2488] less income in t+2 and t+5, respectively, than households in which a recent immigrant did not have a cardiovascular or cerebrovascular health shock. The differences were $1576 [95% CI: -1266, 4419] and $3409 [95% CI: -454, 7261] among long-term immigrants. Graphically, it was also clear that recent immigrants in the treatment group experienced a decrease in household income and had lower household income than those in the comparison group in all years post-shock compared to t-1, while household income did not change among long-term immigrants (Figure 6).

Stratified analysis by source region showed that the greatest difference in employment income between the treatment and comparison groups was in those who were from the US, followed by Africa and South-east Asia (Table 7). Among those from the US, it was seen that employment income was lower among those who experienced a cardiovascular or cerebrovascular health shock, compared to those who did not, ranging from -$3053 [95% CI: -10734, 4628] in t+2 and -$18448 [95% CI: -34760, -2225] in t+5. Among those from Africa and Southeast Asia, employment income was higher among those who experienced a cardiovascular or cerebrovascular health shock compared to those who did not in all years ranging from a difference of $1526 [95% CI: -3975, 7026] in t+2 to $7008 [95% CI: 541, 13475] in t+5 in Africa and $2270 [95% CI: 20, 5574] to $6202 [95% CI: -2363, 10040] in Southeast Asia. Notably, those from the US who experienced a

cardiovascular or cerebrovascular health shock had lower total income than those who did not [-$13114, 95% CI: -29404, 3177] in t+5 and those from Africa who had the shock had considerably lower governmental income compared to those who did not [-$2308, 95% CI: -3671, -945].

3.4 Discussion

3.4.1 Summary of findings and implications

This study showed the change in various income variables over time in individuals who experienced a cardiovascular or cerebrovascular health shock, and focused on which subgroups were impacted more. Overall, there was no statistically significant difference in the income outcomes between immigrants who experienced a cardiovascular or cerebrovascular health shock compared to immigrants who did not (i.e., comparison group consisted of individuals who did not experience a cardiovascular or cerebrovascular health shock but instead were hospitalized for another reason). Notably, the direction and size of the effect of health shock on employment income differed from that published in previous studies, including Garland et al. (2019) who reported that cardiovascular and cerebrovascular health events reduced earnings with relative decrements of 8 to 31% (García-Gómez et al. 2013; Garland et al. 2019b; Jones, Rice, and Zantomio 2020; Tanaka 2021). I, on the other hand, did not see a reduction in employment income among those who experienced a cardiovascular or cerebrovascular health shock. Instead, I saw employment income slightly increased over time. There was also no statistically significant difference in employment income between those who experienced a cardiovascular or cerebrovascular health shock and those who experienced another type of shock (i.e., comparison group). By including a longer time period (5 years post-shock as opposed to 3 years in Garland et al. (2019)), however, I noticed that prior to the shock, individuals showed a positive trajectory for employment income, but after the shock, although employment income continued to increase, it did not increase by the same rate. Between t-2 (average income of $48313) and t-1 (average income of $49926) employment income increased by $1183, while between t-5 (average income of $50046) and t-4 (average income of $57503), employment income increased by only $120 in the treatment group. This means that a cardiovascular or cerebrovascular health shock, on average, impacted the potential growth in individual earnings. Over time, with inflation, an income plateau may influence people's relative income compared to their counterparts whose incomes increased with time, influencing their future economic plans and quality of life. For policy and programming, it implies that individuals who experience a cardiovascular or cerebrovascular health shock, especially those who are younger since they can work many more years, may need support in overcoming an income plateau. In contrast to these findings, Garland et al. (2019) saw a decreasing trajectory of income prior to the shock in their sample of the general Canadian population (Garland et al. 2019b).

It must be highlighted that the sample in this study exclusively focused on immigrants who reportedly have high labor force participation rates (Crossman, Hou, and Picot 2021). These results suggest that immigrants may economically respond to health shocks differently than what theory and previous empirical studies at the more general level suggest, implying that future research focusing on immigrants is needed. Ojeda et al. (2010) in fact, showed that mental illness was associated with lower rates of work among US-born males but not immigrant males and females (Ojeda et al. 2010). In addition, the results seen in this study could have been because the

individuals in the treatment group in this study may have experienced mild health shocks. Fadlon & Nielsen (2021) showed that nonfatal severe shocks can have no meaningful effects on family labour supply (Fadlon and Nielsen 2021). In fact, this study used an extensive definition for a cardiovascular or cerebrovascular health shock. The sample thus could have included a number of individuals who had minor cardiac events. Along with differing samples, the timings of the studies may also explain the contrasting results. Garland et al. identified shocks pre-economic recession during the years of 2008 and 2010 whereas this study focused on shocks reported after the recession, between 2010 and 2013, inclusively. A few studies have reported the effect of recessions on hospitals (S. Choi 2017; Shortt 2014), wages (Axelrad, Sabbath, and Hawkins 2018; Fan et al. 2018), and health (Morgan, Rogers-Carter, and Christianson 2017). It could be that the recession indirectly influenced the impact of cardiovascular or cerebrovascular health shocks on income through its influence on hospitals (e.g., quality of care, capacity) and health.

Furthermore, the reason why this study showed a small and not statistically significant difference between the treatment and comparison group in income variables, as opposed to previous studies, can be because the comparison group included individuals who were also hospitalized. They may also have had severe health shocks that influenced their earnings and income. This implies that the impact of cardiovascular or cerebrovascular health shocks, on average, may not be so different than other health shocks. Reviewing the reasons for hospitalization among the comparison group did not provide a clear picture of the severity of the events that were experienced by the comparison group. This, however, did show that many individuals came in for neoplasms (cancer if malignant), digestive issues, and genitourinary issues (Appendix B2). Although neoplasms are reported to have severe economic consequences, the relationship between digestive and genitourinary issues and income is not known (Bradley et al. 2005; Heinesen, Imai, and Maruyama 2018).

Results from this study also indicate that there are economic implications associated with hospitalizations in general that need to be addressed, as both the treatment and comparison groups saw a plateau in employment income. Due to the interrelated relationships between employment, income, and health, loss of potential income may deteriorate health further in the future leading to a cascading effect of poor health and low income (Stronks et al. 1997). This implies that support should be provided to patients to help them improve their income trajectory. That being said, it must be mentioned that this study included individuals aged 18 to 60, with the average age being around the age of 40. This is close to the age that lifetime earnings start to plateau. Perhaps, the plateau seen in this study in the treatment and comparison groups was influenced by the effect of age on earnings. If the population was restricted to those who were 40 years old or older, then perhaps a downward trajectory may have been seen as seen in the general population (Garland et al. 2019a). Using non-hospitalized individuals in future studies as controls would help to remove the effect of age on earnings.

This study also showed noticeable heterogeneity in the effect of a health shock on income, with larger average effects for females, refugees, recent immigrants, and immigrants from the US, which has implications for targeting interventions and resources for certain groups. The results, however, were not statistically significant and in some instances, the effects were small in magnitude, and so further research is first warranted with larger sample sizes and a comparison group with non-hospitalized individuals.

Results also showed that household income plateaued after the cardiovascular or cerebrovascular health shock. It implies that household income follows the same trajectory as employment earnings. When employment income decreases (increases), household income also decrease (increase). This finding highlight that a health shock influences the income of the entire household unit and as such, the entire household should be considered when thinking about mitigating the economic impacts of a health shock on causing a potential income plateau. Lastly, it was seen that in both the treatment and comparison groups, while income from employment earnings plateaued, total income continued to increase. One reason for this increase could be the increase in governmental income over time. This perhaps implies that social assistance policies are helpful in financially supporting individuals who experience health shocks in Canada. It also implies that health shocks can be costly to the government and suggests that upstream prevention of health shocks should be considered.

3.4.2 Strengths and limitations

Strengths of this study stem from its large comprehensive dataset and analysis plan. Firstly, having longitudinal panel data allowed me to investigate temporal pathways, and have confidence that the income variables were exogenous. The use of propensity score matching with a difference-in-differences approach also reduced the confounding effect of both observed and time-invariant unobserved characteristics, allowing me to make causal inferences. Secondly, as the dataset was administrative, the study did not suffer from common self-reported survey biases such as recall bias and sampling bias. Literature has shown that income is commonly a biased estimate when the data is self-reported (Althubaiti 2016). More problematic, with self-reported data, there would have been high misclassification error in diagnoses (Althubaiti 2016). Perhaps only patients with severe events may have reported experiencing an event, while those with minor events may not have known about their condition. I also looked at health shocks across four calendar years, and controlled for effects of previous events, which may have understated or overstated the impact of a health shock. Also, knowing that immigrants usually make up small proportions of Canadian surveys such as the Canadian Community Health Survey, a strength of this study was its focus on immigrants exclusively, that too from across the country, making the findings highly generalizable to the immigrant population in Canada. In addition, I conducted heterogeneity analysis to show how the impact differed across different immigrant subgroups. Lastly, the linked dataset I used was comprehensive and rich with data, making it possible to study complex research questions.

Limitations of this study also merit discussion. The study results should not be generalized to all as the data was limited to hospitalized Canadian immigrants. Limiting the comparison group to individuals who were also hospitalized was in my opinion the largest limitation of this study. It hindered the ability to study the true impact of a cardiovascular or cerebrovascular health shock. That being said, given that the comparison and treatment groups came from the same source population, the study traded off low external validity with higher internal validity. Furthermore, the study also excluded people who visited the hospital in Quebec, a highly populous province in Canada that receives a high number of immigrants each year, as well as the Territories. The study is also not generalizable to other countries who have different health and employment insurance programs than Canada's that may influence the relationship between health shocks and income.

Other limitations of the study included that of the data. There was under-coverage in IMDB because of the exclusion of tax files. Those who did not file taxes or filed late were not included in the dataset for that year. This could be an issue if people with serious health conditions were more likely not to file taxes. Another problem with the tax data is the lack of precision with respect to timing. I only had information on the year in which the tax file was filed and did not have data on unemployment spells and its timing. I also did not have any indication of change in employment and type of employment (seasonal versus full-time, blue-collar job versus labour job) which would have impacts on the interpretation of the results. I also used outcome variables that were amalgamated and included components that perhaps would not be influenced by health shocks. For instance, the Universal Child Care Benefit was included in the government income variable. Although such components influenced the amount of the income, they would not have influenced the change in income or the difference in income between the treatment and comparison groups, which was what this study focused on. To see a clearer effect of the health shock on multiple income variables, disaggregated variables can be created.

Furthermore, the sample size of treated individuals was not large enough for me to disaggregate the independent variable, and see the impact of each of the cardiovascular and cerebrovascular events separately. The small sample size of the treatment group and the heterogeneity of the comparison population may have led to wide confidence intervals and coefficients that were not statistically significant. That being said, the dataset had a large sample of potential controls, which allowed me to conduct propensity score matching and thus find a highly comparable comparison group.

I was also unable to see a dose relationship. In other words, I was unable to study the difference in impact between a major shock versus a minor one because the dataset did not include that data. I also only looked at the impact of the first shock while someone may have had multiple shocks. It could be hypothesized that the impact was larger for someone who had multiple shocks compared to one. This would imply that the "impacts" are underestimated. I was also limited to the data in the dataset in other ways as well. For instance, I did not have data from primary care on morbidity or family history that I could utilize to control for the effect of baseline health (Smith 1999). Because of the difference-in-difference approach, the influence of unobserved effects was minimal to none, however. I also did not get the opportunity to explore the effect of cardiovascular events on consumption and savings, which are also significant outcomes in immigrant populations when studying the impact of health shocks (Alam and Mahal 2014; Dhanaraj 2016). All that being said, for the research questions investigated in this study, the best available data was utilized.

3.4.3 Future research

Future research can be developed around the limitations of this study. The analysis could be conducted in a larger sample, that includes both immigrants and non-immigrants to study whether the impact differs between the two groups. The analysis could also include those who were non-hospitalized increasing the generalizability of the study and its power to detect statistical significant results. It would also help to clarify whether the income plateau seen was because of the health shock or an age effect. A larger sample size would also allow for a more exhaustive analysis including stratifying the results by type, number, and severity of health shocks.

Future research could also explore the effect of cardiovascular or cerebrovascular events on employment income of spouses to investigate the added worker and caregiver effects, as well as include other economic outcomes such as spending. The results could also be validated by investigating similar research questions with different types of health shocks experienced by immigrants (e.g., cancer) or settings (e.g., other high-income countries). Other matching techniques can also be explored that control for unobserved effects such as those used by Fadlon & Nielson (2021). They match treated individuals to individuals who experienced the same health shock a few years later (Fadlon and Nielsen 2021). Lastly, the heterogeneity analysis could be developed further (e.g., investigate whether the effect differs by type of occupation, income status, and age).

3.5 References

Abelson, Julia et al. 2018. "Uncertain Times: A Survey of Canadian Women's Perspectives toward Mammography Screening." *Preventive Medicine* 112(April): 209–15. https://doi.org/10.1016/j.ypmed.2018.04.021.

Ahmad, Farah et al. 2016. "Burden of Common Mental Disorders in a Community Health Centre Sample." *Canadian Family Physician* 62(12): e758–66.

Akiva, Moshe Ben, Daniel McFadden, and Kenneth Train. 2019. "Foundations of Stated Preference Elicitation: Consumer Behavior and Choice Based Conjoint Analysis." *Foundations and Trends in Econometrics* 10(1–2): 1–144.

Akresh, Ilana Redstone. 2006. "Occupational Mobility among Legal Immigrants to the United States." *International Migration Review* 40(4): 854–84.

Alam, Khurshid, and Ajay Mahal. 2014. "Economic Impacts of Health Shocks on Households in Low and Middle Income Countries: A Review of the Literature." *Globalization and Health* 10(1).

Alegría, Margarita, Kristine M. Molina, and Chih Nan Chen. 2014. "Neighborhood Characteristics and Differential Risk for Depressive and Anxiety Disorders across Racial/Ethnic Groups in the United States." *Depression and Anxiety* 31(1): 27–37.

Alexandre, Pierre Kébreau et al. 2008. "Predictors of Outpatient Mental Health Service Use by American Youth." *Psychological Services* 5(3): 251–61.

Althubaiti, Alaa. 2016. "Information Bias in Health Research: Definition, Pitfalls, and Adjustment Methods." *Journal of Multidisciplinary Healthcare* 9: 211–17.

American Psychiatric Association. 2013. "Diagnostic and Statistical Manual of Mental Disorders." https://psychiatryonline.org/doi/book/10.1176/appi.books.9780890425596 (June 14, 2022).

Anderson, Bridget, and Scott Blinder. 2019. "Who Counts as a Migrant? Definitions and Their Consequences." *The Migration Observatory*. https://migrationobservatory.ox.ac.uk/resources/briefings/who-counts-as-a-migrant-definitions-and-their-consequences/ (August 27, 2022).

Anderson, J G. 1973. "Health Services Utilization: Framework and Review." *Health services research* 8(3): 184–99. http://www.ncbi.nlm.nih.gov/pubmed/4593850%0Ahttp://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=PMC1071757.

Arango, Celso et al. 2021. "Risk and Protective Factors for Mental Disorders beyond Genetics: An Evidence-Based Atlas." *World Psychiatry* 20(3): 417–36.

Arya, Akshaya Neil, and Thomas Piggott. 2018. *Under-Served: Health Determinants of Indigineous, Inner-City, and Migrnt Populations in Canada*. ed. Canadian Scholars. Toronto.

Aryal, Komal et al. 2021. "Nursing Home Resident Admission Characteristics and Potentially Preventable Emergency Department Transfers." *Journal of the American Medical Directors Association*. https://doi.org/10.1016/j.jamda.2021.11.020.

Axelrad, Hila, Erika L. Sabbath, and Summer Sherburne Hawkins. 2018. "The 2008–2009 Great Recession and Employment Outcomes among Older Workers." *European Journal of Ageing* 15(1): 35–45.

Baek, Kelly et al. 2021. "Factors Influencing Formal and Informal Resource Utilization for Mental Distress Among Korean Americans in Southern California." *Journal of Immigrant and Minority Health* 23(3): 528–35. https://doi.org/10.1007/s10903-020-01050-1.

Bailey, Rahn Kennedy, Holly L. Blackmon, and Francis L. Stevens. 2009. "Major Depressive Disorder in the African American Population: Meeting the Challenges of Stigma, Misdiagnosis, and Treatment Disparities." *Journal of the National Medical Association* 101(11): 1084–89.

Balintic, Vanessa. 2022. "Advocates, Critics Warn Ontario's Planned Changes to Long-Term Care Are a Violation of Patient Rights." *CBC News*.

Barnes, Steve. 2016. *Health Care Access for the Uninsured in Ontario Symposium Report*. https://www.wellesleyinstitute.com/wp-content/uploads/2017/01/Health-Care-Access-for-the-Uninsured-Symposium-Report.pdf.

Baroud, Evelyne et al. 2019. "Suicidality among Lebanese Adolescents: Prevalence, Predictors and Service Utilization." *Psychiatry Research* 275(March 2019): 338–44. https://doi.org/10.1016/j.psychres.2019.03.033.

Barwick, Melanie et al. 2013. "Profiles and Service Utilization for Children Accessing a Mental Health Walk-In Clinic versus Usual Care." *Journal of Evidence-Based Social Work* 10(4): 338–52.

Bauer, Greta R. et al. 2021. "Intersectionality in Quantitative Research: A Systematic Review of Its Emergence and Applications of Theory and Methods." *SSM - Population Health* 14(April): 100798. https://doi.org/10.1016/j.ssmph.2021.100798.

Beiser, Morton. 2005. "The Health of Immigrants and Refugees in Canada." *Canadian Journal of Public Health* 96(SUPPL. 2).

———. 2010. "Predictors of Emotional Problems and Physical Aggression among Children of Hong Kong Chinese, Mainland Chinese and Filipino Immigrants to Canada." *Social Psychiatry and Psychiatric Epidemiology* 45(10): 1011–21.

———. 2011. "Regional Effects on the Mental Health of Immigrant Children: Results from the New Canadian Children and Youth Study (NCCYS)." *Health and Place* 17(3): 822–29. http://dx.doi.org/10.1016/j.healthplace.2011.03.005.

———. 2014. "Predictors of Immigrant Children's Mental Health in Canada: Selection, Settlement Contingencies, Culture, or All of the Above?" *Social Psychiatry and Psychiatric Epidemiology* 49(5): 743–56.

Beiser, Morton, and Feng Hou. 2016. "Mental Health Effects of Premigration Trauma and Postmigration Discrimination on Refugee Youth in Canada." *Journal of Nervous and Mental Disease* 204(6): 464–70.

Beiser, Morton, Feng Hou, Ilene Hyman, and Michel Tousignant. 2002. "Poverty, Family Process, and the Mental Health of Immigrant Children in Canada." *American Journal of*

Public Health 92(2): 220–27.
de Bekker-Grob, Esther W. et al. 2019. "Are Healthcare Choices Predictable? The Impact of Discrete Choice Experiment Designs and Models." *Value in Health* 22(9).
de Bekker-Grob, Esther W., Bas Donkers, Marcel F. Jonker, and Elly A. Stolk. 2015. "Sample Size Requirements for Discrete-Choice Experiments in Healthcare: A Practical Guide." *Patient* 8(5): 373–84.
Belhadj Kouider, Esmahan, Ute Koglin, and Franz Petermann. 2015. "Emotional and Behavioral Problems in Migrant Children and Adolescents in American Countries: A Systematic Review." *Journal of Immigrant and Minority Health* 17(4): 1240–58. http://dx.doi.org/10.1007/s10903-014-0039-2.
Blakely, Tony et al. 2021. "Disease-Related Income and Economic Productivity Loss in New Zealand: A Longitudinal Analysis of Linked Individual-Level Data." *PLoS Medicine* 18(11): 1–19. http://dx.doi.org/10.1371/journal.pmed.1003848.
Bonsang, Eric. 2009. "Does Informal Care from Children to Their Elderly Parents Substitute for Formal Care in Europe?" *Journal of Health Economics* 28(1): 143–54.
Botly, Leigh C.P. et al. 2020. "Recent Trends in Hospitalizations for Cardiovascular Disease, Stroke, and Vascular Cognitive Impairment in Canada." *Canadian Journal of Cardiology* 36(7): 1081–90. https://doi.org/10.1016/j.cjca.2020.03.007.
Boulanger, J. M. et al. 2018. "Canadian Stroke Best Practice Recommendations for Acute Stroke Management: Prehospital, Emergency Department, and Acute Inpatient Stroke Care, 6th Edition, Update 2018." *International Journal of Stroke* 13(9): 949–84.
Boyer, Martin et al. 2017. *Long-Term Care Insurance: Knowledge Barriers, Risk Perception and Adverse Selection*. Montreal.
Boyle, Michael H., Katholiki Georgiades, Laura Duncan, Li Wang, et al. 2019. "Poverty, Neighbourhood Antisocial Behaviour, and Children's Mental Health Problems: Findings from the 2014 Ontario Child Health Study." *Canadian Journal of Psychiatry* 64(4): 285–93.
Boyle, Michael H., Katholiki Georgiades, Laura Duncan, Jinette Comeau, et al. 2019. "The 2014 Ontario Child Health Study—Methodology." *Canadian Journal of Psychiatry* 64(4): 237–45.
Boyle, Michael H., Laura Duncan, et al. 2019. "The 2014 Ontario Child Health Study Emotional Behavioural Scales (OCHS-EBS) Part II: Psychometric Adequacy for Categorical Measurement of Selected DSM-5 Disorders." *Canadian Journal of Psychiatry* 64(6): 434–42.
Bradley, Cathy J., David Neumark, and Scott Barkowski. 2013. "Does Employer-Provided Health Insurance Constrain Labor Supply Adjustments to Health Shocks? New Evidence on Women Diagnosed with Breast Cancer." *Journal of Health Economics* 32(5): 833–49. http://dx.doi.org/10.1016/j.jhealeco.2013.06.008.
Bradley, Cathy J., David Neumark, Heather L. Bednarek, and Maryjean Schenk. 2005. "Short-Term Effects of Breast Cancer on Labor Market Attachment: Results from a Longitudinal Study." *Journal of Health Economics* 24(1): 137–60.
Bradley, Elizabeth H. et al. 2004. "Intended Use of Informal Long-Term Care: The Role of Race and Ethnicity." *Ethnicity and Health* 9(1): 37–54.
Brau, R, and LR Bruni. 2008. "Eliciting the Demand for Long-Term Care Coverage: A Discrete Choice Modelling Analysis." *Health Economics* 1131(2007): 1127–31.
Bridges, John F.P. et al. 2011. "Conjoint Analysis Applications in Health - A Checklist: A Report of the ISPOR Good Research Practices for Conjoint Analysis Task Force." *Value in*

Health 14(4): 403–13. http://dx.doi.org/10.1016/j.jval.2010.11.013.
Brown, Kevin A. et al. 2021. "Association between Nursing Home Crowding and COVID-19 Infection and Mortality in Ontario, Canada." *JAMA Internal Medicine* 181(2): 229–36.
Brynaert Brennan et Associé.e.s. 2014. *Report on Service and Housing Needs of Francophone Seniors*. Erie St. Clair/South West.
Bueckert, Kate. 2021. "More Beds Coming as System Tackles 5-Year Wait Lists for Long-Term Care."
Campaign Research. 2020. *Home Care Ontario Study*.
Canada, Public Health Agency of. 2022. "COVID-19 Epidemiology Update."
Canada, Statistics. 2021. "Census Profile, 2021 Census of Population Profile Table." https://www12.statcan.gc.ca/census-recensement/2021/dp-pd/prof/details/page.cfm?Lang=E&SearchText=Ontario&DGUIDlist=2021A000235&GENDERlist=1,2,3&STATISTIClist=1&HEADERlist=0 (August 12, 2022).
Canadian Institute for Health Information. 2021. *The Impact of COVID-19 on Long-Term Care in Canada: Focus on the First 6 Months*. http://www.scie-socialcareonline.org.uk/the-impact-of-covid-19-on-long-term-care-in-canada-focus-on-the-first-6-months/r/a116f00000UuXxWAAV.
Capatina, Elena, Michael P. Keane, and Shiko Maruyama. 2018. "Health Shocks and the Evolution of Consumption and Income over the Life-Cycle." *SSRN Electronic Journal*.
Casey, Liam. 2021. "Ontario Home Care Sector Reports Mass Exodus of Healthcare Workers Moving to Hospitals, Long-Term Care Homes." *The Canadian Press*.
———. "'A Crisis for Home Care': Droves of Workers Leave for Hospitals, Nursing Homes." https://www.cbc.ca/news/canada/toronto/ont-home-care-1.6232042 (August 12, 2022).
Castañeda, Heide et al. 2015. "Immigration as a Social Determinant of Health." *Annual Review of Public Health* 36: 375–92.
Cervantes, Richard C., Karina A. Gattamorta, and Jodi Berger-Cardoso. 2019. "Examining Difference in Immigration Stress, Acculturation Stress and Mental Health Outcomes in Six Hispanic/Latino Nativity and Regional Groups." *Journal of Immigrant and Minority Health* 21(1): 14–20. http://dx.doi.org/10.1007/s10903-018-0714-9.
Chadwick, Kathryn A., and Patricia A. Collins. 2015. "Examining the Relationship between Social Support Availability, Urban Center Size, and Self-Perceived Mental Health of Recent Immigrants to Canada: A Mixed-Methods Analysis." *Social Science and Medicine* 128: 220–30. http://dx.doi.org/10.1016/j.socscimed.2015.01.036.
Chang, Cindy D. 2019. "Social Determinants of Health and Health Disparities Among Immigrants and Their Children." *Current Problems in Pediatric and Adolescent Health Care* 49(1): 23–30. https://doi.org/10.1016/j.cppeds.2018.11.009.
Charles, Kerwin Kofi. 1999. "Sickness in the Family: Health Shocks and Spousal Labor Supply."
Chen, Alice W., Arminée Kazanjian, and Hubert Wong. 2009. "Why Do Chinese Canadians Not Consult Mental Health Services: HealtH Status, Language or Culture?" *Transcultural Psychiatry* 46(4): 623–41.
Chester, Helen et al. 2018. "People with Dementia and Carer Preferences for Home Support Services in Early-Stage Dementia." *Aging and Mental Health* 22(2): 270–79. https://doi.org/10.1080/13607863.2016.1247424.
Chiswick, Barry R., Yew Liang Lee, and Paul W. Miller. 2008. "Immigrant Selection Systems and Immigrant Health." *Contemporary Economic Policy* 26(4): 555–78.

Chiu, Maria, Abigail Amartey, Xuesong Wang, and Paul Kurdyak. 2018. "Ethnic Differences in Mental Health Status and Service Utilization: A Population-Based Study in Ontario, Canada." *Canadian Journal of Psychiatry* 63(7): 481–91.

Choi, Sung. 2017. "Hospital Capital Investment during the Great Recession." *Inquiry (United States)* 54.

Choi, Sung W., Christal Ramos, Kyungha Kim, and Shahinshah Faisal Azim. 2019. "The Association of Racial and Ethnic Social Networks with Mental Health Service Utilization Across Minority Groups in the USA." *Journal of Racial and Ethnic Health Disparities* 6(4): 836–50.

Chow, Julian Chun Chung, Kim Jaffee, and Lonnie Snowden. 2003. "Racial/Ethnic Disparities in the Use of Mental Health Services in Poverty Areas." *American Journal of Public Health* 93(5): 792–97.

Chu, Leung Wing et al. 2014. "Community End-of-Life Care among Chinese Older Adults Living in Nursing Homes." *Geriatrics and Gerontology International* 14(2): 273–84.

Closing the Gap Healthcare Group Inc. 2020. "Home Care Costs in Ontario—A Complete Breakdown." https://www.closingthegap.ca/home-care-costs-in-ontario-a-complete-breakdown/.

Cloutier, Denise S. et al. 2019. "Long-Term Care Service Trajectories and Their Predictors for Persons Living With Dementia: Results From a Canadian Study." *Journal of Aging and Health* 31(1): 139–64.

Cohen, Sheldon, and Thomas Ashby Wills. 1985. "Stress, Social Support, and the Buffering Hypothesis." *Psychological Bulletin* 98(2): 310–57.

Colizzi, Marco, Antonio Lasalvia, and Mirella Ruggeri. 2020. "Prevention and Early Intervention in Youth Mental Health: Is It Time for a Multidisciplinary and Trans-Diagnostic Model for Care?" *International Journal of Mental Health Systems* 14(1): 1–14. https://doi.org/10.1186/s13033-020-00356-9.

Constant, Amelie F., Teresa García-Muñoz, Shoshana Neuman, and Tzahi Neuman. 2018. "A 'Healthy Immigrant Effect' or a 'Sick Immigrant Effect'? Selection and Policies Matter." *European Journal of Health Economics* 19(1): 103–21.

Copeland, William E., Lilly Shanahan, E. Jane Costello, and Adrian Angold. 2009. "Childhood and Adolescent Psychiatric Disorders as Predictors of Young Adult Disorders." *Archives of General Psychiatry* 66(7): 764–72.

Cost, Katherine Tombeau et al. 2022. "Mostly Worse, Occasionally Better: Impact of COVID-19 Pandemic on the Mental Health of Canadian Children and Adolescents." *European Child and Adolescent Psychiatry* 31(4): 671–84. https://doi.org/10.1007/s00787-021-01744-3.

Crossman, Eden, Feng Hou, and Garnett Picot. 2021. "Are the Gaps in Labour Market Outcomes between Immigrants and Their Canadian-Born Counterparts Starting to Close ?" *Statistics Canada* (36).

Currie, J, and BC Madrian. 1999. "Health, Health Insurance and the Labor Market." In *Handbook of Labor Economics*, eds. O Ashenfelter and D Card. Amsterdam, 3309–3407.

Cutrona, Carolyn E., Gail Wallace, and Kristin A. Wesner. 2006. "Neighborhood Characteristics and Depression an Examination of Stress Processes." *Current Directions in Psychological Science* 15(4): 188–92.

Dano, Anne Moller. 2005. "Road Injuries and Long-Run Effects on Income and Employment." *Health Economics* 14(9): 955–70.

Danso, Kofi. 2016. "Nativity and Health Disparities: Predictors of Immigrant Health." *Social*

Work in Public Health 31(3): 175–87.
Das-Munshi, Jayati et al. 2019. "Ethnic Density and Other Neighbourhood Associations for Mortality in Severe Mental Illness: A Retrospective Cohort Study with Multi-Level Analysis from an Urbanised and Ethnically Diverse Location in the UK." *The Lancet Psychiatry* 6(6): 506–17.
David Naylor, C., Andrew Boozary, and Owen Adams. 2020. "Canadian Federal-Provincial/Territorial Funding of Universal Health Care: Fraught History, Uncertain Future." *Cmaj* 192(45): E1408–12.
Delavande, Adeline, and Charles F Manski. 2015. "Using Elicited Choice Probabilities in Hypothetical Elections to Study Decisions to Vote." *Elect Stud*: 28–37.
Derose, Kathryn Pitkin, José J. Escarce, and Nicole Lurie. 2007. "Immigrants and Health Care: Sources of Vulnerability." *Health Affairs* 26(5): 1258–68.
Derr, Amelia S. 2009. "Mental Health Service Use Among Immigrants in the United States: A Systematic Review Dr." 6(2): 356–72.
Dhanaraj, Sowmya. 2016. "Economic Vulnerability to Health Shocks and Coping Strategies: Evidence from Andhra Pradesh, India." *Health Policy and Planning* 31(6): 749–58.
Disney, Lindsey. 2021. "The Impact of Employment on Immigrant Mental Health: Results from a National Survey." *Social work* 66(2): 93–100.
Dixon, Simon et al. 2015. "Assessing Patient Preferences for the Delivery of Different Community-Based Models of Care Using a Discrete Choice Experiment." *Health Expectations*.
Duncan, Laura et al. 2019. "The 2014 Ontario Child Health Study Emotional Behavioural Scales (OCHS-EBS) Part I: A Checklist for Dimensional Measurement of Selected DSM-5 Disorders." *Canadian Journal of Psychiatry* 64(6): 423–33.
Durbin, Anna et al. 2015a. "Examining the Relationship between Neighbourhood Deprivation and Mental Health Service Use of Immigrants in Ontario, Canada: A Cross-Sectional Study." *BMJ Open* 5(3).
———. 2015b. "Mental Health Service Use by Recent Immigrants from Different World Regions and by Non-Immigrants in Ontario, Canada: A Cross-Sectional Study." *BMC Health Services Research* 15(1). http://dx.doi.org/10.1186/s12913-015-0995-9.
Eccles, Jacquelynne S et al. 1993. "Development during Adolescence: The Impact of Stage-Environment Fit on Young Adolescents' Experiences in Schools and in Families." *American Psychologist* 48(2): 90–101.
Edwards, Ryan D., and Jennifer Roff. 2010. "Negative Effects of Paternal Age on Children's Neurocognitive Outcomes Can Be Explained by Maternal Education and Number of Siblings." *PLoS ONE* 5(9): 1–9.
Emerson, Scott D. et al. 2022. "Neighbourhood Context and Diagnosed Mental Health Conditions among Immigrant and Non-Immigrant Youth: A Population-Based Cohort Study in British Columbia, Canada." *Social Psychiatry and Psychiatric Epidemiology* (0123456789). https://doi.org/10.1007/s00127-022-02301-2.
Essue, BM et al. 2017. "Economic Burden of Chronic Ill Health and Injuries for Households in Low- and Middle-Income Countries." In *Disease Control Priorities: Improving Health and Reducing Poverty*, eds. DT Jamison et al. Washington.
Fadlon, Itzik, and Torben Heien Nielsen. 2021. "Family Labor Supply Responses to Severe Health Shocks: Evidence from Danish Administrative Records†." *American Economic Journal: Applied Economics* 13(3): 1–30.

Fan, Jonathan K. et al. 2018. "Labor Market and Health Trajectories during Periods of Economic Recession and Expansion in the United States, 1988–2011." *Scandinavian Journal of Work, Environment and Health* 44(6): 639–46.

Filion, Nicole, Andrew Fenelon, and Michel Boudreaux. 2018. "Immigration, Citizenship, and the Mental Health of Adolescents." *PLoS ONE* 13(5): 1–12.

Finkelstein, Eric A., Marcel Bilger, Terry N. Flynn, and Chetna Malhotra. 2015. "Preferences for End-of-Life Care among Community-Dwelling Older Adults and Patients with Advanced Cancer: A Discrete Choice Experiment." *Health Policy* 119(11): 1482–89. http://dx.doi.org/10.1016/j.healthpol.2015.09.001.

Fisher, Michael P., and Mika K. Hamer. 2020. "Qualitative Methods in Health Policy and Systems Research: A Framework for Study Planning." *Qualitative Health Research* 30(12): 1899–1912.

Fletcher, Jason, and Katie M Jajtner. 2021. "Intergenerational Health Mobility: Magnitudes and Importance of Schools and Place." *Health Economics* 30(7): 1648–67.

Forder, Julien, Katerina Gousia, and Eirini Christina Saloniki. 2019. "The Impact of Long-Term Care on Primary Care Doctor Consultations for People over 75 Years." *European Journal of Health Economics* 20(3): 375–87. http://dx.doi.org/10.1007/s10198-018-0999-6.

Franco, Yujin, and Eun Young Choi. 2020. "The Relationship Between Immigrant Status and Undiagnosed Dementia: The Role of Limited English Proficiency." *Journal of Immigrant and Minority Health* 22(5): 914–22. https://doi.org/10.1007/s10903-019-00963-w.

Frounfelker, Rochelle L et al. 2019. "Mental Health of Refugee Children and Youth: Epidemiology, Interventions, and Future Directions." : 1–18.

Fu, Rong et al. 2019. "How Do Cardiovascular Diseases Harm Labor Force Participation? Evidence of Nationally Representative Survey Data from Japan, a Super-Aged Society." *PLoS ONE* 14(7): 1–16.

Gagnon, Monica, Nisha Kansal, Ritika Goel, and Denise Gastaldo. 2021. "Immigration Status as the Foundational Determinant of Health for People Without Status in Canada: A Scoping Review." *Journal of Immigrant and Minority Health* (0123456789). https://doi.org/10.1007/s10903-021-01273-w.

Gandhi, Sima et al. 2016a. "Mental Health Service Use among Children and Youth in Ontario: Population-Based Trends over Time." *Canadian Journal of Psychiatry* 61(2): 119–24.

———. 2016b. "Mental Health Service Use among Children and Youth in Ontario: Population-Based Trends over Time." *Canadian Journal of Psychiatry* 61(2): 119–24.

Garasia, Sophiya et al. "Health Outcomes, Health Services Utilization, and Costs Consequences of Medicare Uninsurance among Migrants in Canada: A Systematic Review." *Submitted to Health Services Research*.

García-Gómez, Pilar. 2011. "Institutions, Health Shocks and Labour Market Outcomes across Europe." *Journal of Health Economics* 30(1): 200–213.

García-Gómez, Pilar, Hans van Kippersluis, Owen O'Donnell, and Eddy van Doorslaer. 2013. "Long-Term and Spillover Effects of Health Shocks on Employment and Income." *Journal of Human Resources* 48(4): 873–909.

Garland, Allan et al. 2019a. "Effects of Cardiovascular and Cerebrovascular Health Events on Work and Earnings: A Population-Based Retrospective Cohort Study." *Annals of Internal Medicine* 191(1): E3–10.

———. 2019b. "Effects of Cardiovascular and Cerebrovascular Health Events on Work and Earnings: A Population-Based Retrospective Cohort Study." *Annals of Internal Medicine*

191(1): E3–10.
Gatt, Justine M. et al. 2020. "Trauma, Resilience, and Mental Health in Migrant and Non-Migrant Youth: An International Cross-Sectional Study Across Six Countries." *Frontiers in Psychiatry* 10(March): 1–15.
Gentili, Elena, Giuliano Masiero, and Fabrizio Mazzonna. 2017. "The Role of Culture in Long-Term Care Arrangement Decisions." *Journal of Economic Behavior and Organization* 143: 186–200. https://doi.org/10.1016/j.jebo.2017.09.007.
George, M. A., and C. Bassani. 2016a. "The Health of Immigrant Children Who Live in Areas with High Immigrant Concentration." *Ethnicity and Health* 21(5): 426–38. http://dx.doi.org/10.1080/13557858.2015.1066762.
———. 2016b. "The Health of Immigrant Children Who Live in Areas with High Immigrant Concentration." *Ethnicity and Health* 21(5): 426–38. http://dx.doi.org/10.1080/13557858.2015.1066762.
George, Usha, Mary S. Thomson, Ferzana Chaze, and Sepali Guruge. 2015. "Immigrant Mental Health, a Public Health Issue: Looking Back and Moving Forward." *International Journal of Environmental Research and Public Health* 12(10): 13624–48.
Georgiades, Katholiki et al. 2019. "Six-Month Prevalence of Mental Disorders and Service Contacts among Children and Youth in Ontario: Evidence from the 2014 Ontario Child Health Study." *Canadian Journal of Psychiatry* 64(4): 246–55.
Georgiades, Katholiki, Michael H. Boyle, and Eric Duku. 2007. "Contextual Influences on Children's Mental Health and School Performance: The Moderating Effects of Family Immigrant Status." *Child Development* 78(5): 1572–91.
Georgiades, Katholiki, Michael H. Boyle, and Kelly A. Fife. 2013. "Emotional and Behavioral Problems Among Adolescent Students: The Role of Immigrant, Racial/Ethnic Congruence and Belongingness in Schools." *Journal of Youth and Adolescence* 42(9): 1473–92.
Gibbard, Robyn. 2017. "Sizing up the Challenge: Meeting the Demand for Long-Term Care in Canada." *The Conference Board of Canada* (November): 1–48. https://www.cma.ca/sites/default/files/2018-11/9228_Meeting the Demand for Long-Term Care Beds_RPT.pdf.
Government of Canada. 2014. "Government of Canada — Action for Seniors Report." https://www.canada.ca/en/employment-social-development/programs/seniors-action-report.html (August 12, 2022).
———. 2019. "Rural and Northern Immigration Pilot: About the Pilot - Canada.Ca." https://www.canada.ca/en/immigration-refugees-citizenship/services/immigrate-canada/rural-northern-immigration-pilot.html (January 15, 2020).
———. 2022a. "Atlantic Immigration Program." https://www.canada.ca/en/immigration-refugees-citizenship/services/immigrate-canada/atlantic-immigration.html (August 27, 2022).
———. 2022b. "Interim Federal Health Program: What Is Covered." https://www.canada.ca/en/immigration-refugees-citizenship/services/refugees/help-within-canada/health-care/interim-federal-health-program/coverage-summary.html (September 28, 2022).
Government of Ontario. 2022. "Protecting People's Health." https://budget.ontario.ca/2021/health.html (August 12, 2022).
Grignon, Michel, and Byron G. Spencer. 2018. "The Funding of Long-Term Care in Canada: What Do We Know, What Should We Know." *Canadian Journal on Aging* 37(2): 110–20.

Guan, Alice et al. 2020. "Neighborhood Ethnic Composition and Self-Rated Health Among Chinese and Vietnamese American Immigrants." *Journal of Immigrant and Minority Health* (0123456789). https://doi.org/10.1007/s10903-020-01041-2.

Gupta, R, and K Vijayan. 2020. "Analysis of Caregiver Burden in South Asian Families in the Dallas-Fort Worth Metropolitan Area : Insights for Social Practice Author (s): Rashmi Gupta and Vijayan K . Pillai Source : Journal of Applied Sociology , Vol . 22 , No . 2 , Special Joint Issu." 22(2): 35–54.

Gustafsson-Wright, Emily, Wendy Janssens, and Jacques Van Der Gaag. 2011. "The Inequitable Impact of Health Shocks on the Uninsured in Namibia." *Health Policy and Planning* 26(2): 142–56.

H. Krueger & Associates Inc. 2015. *Estimated Prevalence of Stroke Survivors with Disability in Canada*. https://www.canadianstroke.ca/sites/default/files/resources/Stroke-Prevalence-Report-2015-02-25.pdf.

Haan, Peter, and Michal Myck. 2009. "Dynamics of Health and Labor Market Risks." *Journal of Health Economics* 28(6): 1116–25.

Halla, Martin, and Martina Zweimüller. 2013. "The Effect of Health on Earnings: Quasi-Experimental Evidence from Commuting Accidents." *Labour Economics* 24: 23–38.

Halsall, Tanya et al. 2019. "Trends in Mental Health System Transformation: Integrating Youth Services within the Canadian Context." *Healthcare Management Forum* 32(2): 51–55.

Hansen, Marissa C., Dahlia Fuentes, and Maria P. Aranda. 2018. "Re-Engagement into Care: The Role of Social Support on Service Use for Recurrent Episodes of Mental Health Distress Among Primary Care Patients." *Journal of Behavioral Health Services and Research* 45(1): 90–104.

Hansson, Emily K., Andrew Tuck, Steve Lurie, and Kwame McKenzie. 2012. "Rates of Mental Illness and Suicidality in Immigrant, Refugee, Ethnocultural, and Racialized Groups in Canada: A Review of the Literature." *Canadian Journal of Psychiatry* 57(2): 111–21.

Health Quality Ontario. 2012. *Quality Improvement Plans in Long-Term Care: Lessons Learned*.

Heart and Stroke Foundation. "Saving Lives | Heart and Stroke Foundation." https://www.heartandstroke.ca/what-we-do/our-impact/saving-lives (June 7, 2022).

Heinesen, Eskil, Susumu Imai, and Shiko Maruyama. 2018. "Employment, Job Skills and Occupational Mobility of Cancer Survivors." *Journal of Health Economics* 58: 151–75. https://doi.org/10.1016/j.jhealeco.2018.01.006.

Henry, Hani M. et al. 2009. "Immigrants' Continuing Bonds with Their Native Culture: AssimilatioN Analysis of Three Interviews." *Transcultural Psychiatry* 46(2): 257–84.

Hensher, David A, John M. Rose, and William H. Greene. 2005. *Applied Choice Analysis A Primer*. Cambridge: Cambridge University Press.

Home Care Ontario. "Home Care & Me | Home Care Ontario." https://www.homecareontario.ca/home-care-services/overview (February 1, 2020).

Houle, René, and Hélène Maheux. 2016. "150 Years of Immigration in Canada." *Statistics Canada*. https://www150.statcan.gc.ca/n1/pub/11-630-x/11-630-x2016006-eng.htm.

Howard, George et al. 1985. "Factors Influencing Return to Work Following Cerebral Infarction." *JAMA: The Journal of the American Medical Association* 253(2): 226–32.

Hurlburt, Michael S. et al. 2004. "Contextual Predictors of Mental Health Service Use among Children Open to Child Welfare." *Archives of General Psychiatry* 61(12): 1217–24.

Hutchison, Brian, Jean-frédéric Levesque, Erin Strumpf, and Natalie Coyle. 2015. "Primary Health Care in Canada : Systems in Motion Source : The Milbank Quarterly , Vol . 89 , No .

2 (June 2011), Pp . 256-288 Published by : Wiley on Behalf of Milbank Memorial Fund Stable URL : Http://Www.Jstor.Org/Stable/23036216 Your Use of the JSTO." 89(2): 256–88.

Imbens, Guido W. 2015. "Matching Methods in Practice: Three Examples." *Journal of Human Resources* 50(2): 373–419.

IOM UN Migration. 2020. *World Migration Report 2020*. Geneva.

Islam, A, and J Parasnis. 2017. "Heterogeneous Effects of Health Shocks in Developed Countries: Evidence from Australia." *Monash University Department of Economics*.

Islam, Farah. 2015. "Immigrating to Canada during Early Childhood Associated with Increased Risk for Mood Disorders." *Community Mental Health Journal* 51(6): 723–32. http://dx.doi.org/10.1007/s10597-015-9851-y.

Janssen, Ellen M., Deborah A. Marshall, A. Brett Hauber, and John F.P. Bridges. 2017. "Improving the Quality of Discrete-Choice Experiments in Health: How Can We Assess Validity and Reliability?" *Expert Review of Pharmacoeconomics and Outcomes Research*.

Jeon, Sung Hee et al. 2020. "Effects of Cardiovascular Health Shocks on Spouses' Work and Earnings: A National Study." *Medical Care* 58(2): 128–36.

Jeong, Ahwon et al. 2020. "Health Outcomes of Immigrants in Nursing Homes: A Population-Based Retrospective Cohort Study in Ontario, Canada." *Journal of the American Medical Directors Association* 21(6): 740-746.e5. https://doi.org/10.1016/j.jamda.2020.03.001.

Johnson, F. Reed et al. 2013. "Constructing Experimental Designs for Discrete-Choice Experiments: Report of the ISPOR Conjoint Analysis Experimental Design Good Research Practices Task Force." *Value in Health* 16(1): 3–13.

Johnson, R, and B Orme. 2003. "Getting the Most from CBC." *Sequim: Sawtooth Software Research Paper Series*.

Johnson, Reed et al. 2013. "Constructing Experimental Designs for Discrete-Choice Experiments: Report of the ISPOR Conjoint Analysis Experimental Design Good Research Practices Task Force." *Value in Health*.

Johnson, Shanthi et al. 2018. "No Place Like Home: A Systematic Review of Home Care for Older Adults in Canada." *Canadian Journal on Aging* 37(4): 400–419.

Jones, Aaron et al. 2021. "Impact of the COVID-19 Pandemic on Home Care Services Among Community-Dwelling Adults With Dementia." *Journal of the American Medical Directors Association* 22(11): 2258-2262.e1. https://doi.org/10.1016/j.jamda.2021.08.031.

Jones, Andrew M., Nigel Rice, and Francesca Zantomio. 2020. "Acute Health Shocks and Labour Market Outcomes: Evidence from the Post Crash Era." *Economics and Human Biology* 36(2020): 100811. https://doi.org/10.1016/j.ehb.2019.100811.

Kaambwa, Billingsley et al. 2015. "Investigating Consumers' and Informal Carers' Views and Preferences for Consumer Directed Care: A Discrete Choice Experiment." *Social Science and Medicine* 140: 81–94. http://dx.doi.org/10.1016/j.socscimed.2015.06.034.

Kaida, Lisa, and Monica Boyd. 2011. "Poverty Variations among the Elderly: The Roles of Income Security Policies and Family Co-Residence." *Canadian Journal on Aging* 30(1): 83–100.

Kampanellou, Eleni, Helen Chester, Linda Davies, Sue Davies, Clarissa Giebel, Jane Hughes, David Challis, Paul Clarkson, et al. 2019. "Carer Preferences for Home Support Services in Later Stage Dementia." *Aging & mental health* 23(1): 60–68. http://ovidsp.ovid.com/ovidweb.cgi?T=JS&PAGE=reference&D=prem&NEWS=N&AN=29090948.

———. 2019. “Carer Preferences for Home Support Services in Later Stage Dementia.” *Aging and Mental Health* 23(1): 60–68. https://doi.org/10.1080/13607863.2017.1394441.
Ketchen, Sandra. 2021. “Ontario Seniors and Patients Will Pay the Price of the Developing Home-Care Crisis.” *Toronto News*.
Kim, Daniel. 2008. “Blues from the Neighborhood? Neighborhood Characteristics and Depression.” *Epidemiologic Reviews* 30(1): 101–17.
Kim, Sophia Bohun, and Yeonjung Jane Lee. 2021. “Factors Associated with Mental Health Help-Seeking Among Asian Americans: A Systematic Review.” *Journal of Racial and Ethnic Health Disparities*.
Kimber, Melissa et al. 2015. “Adolescent Body Image Distortion: A Consideration of Immigrant Generational Status, Immigrant Concentration, Sex and Body Dissatisfaction.” *Journal of Youth and Adolescence* 44(11): 2154–71.
Koehn, Sharon. 2009. “Negotiating Candidacy: Ethnic Minority Seniors’ Access to Care.” *Ageing and Society* 29(4): 585–608.
Kovaleva, Mariya, Abigail Jones, Cathy A. Maxwell, and Elizabeth M. Long. 2021. “Immigrants and Dementia: Literature Update.” *Geriatric Nursing* 42(5): 1218–21. https://doi.org/10.1016/j.gerinurse.2021.04.019.
Kuluski, Kerry, A. Paul Williams, Whitney Berta, and Audrey Laporte. 2012. “Home Care or Long-Term Care? Setting the Balance of Care in Urban and Rural Northwestern Ontario, Canada.” *Health and Social Care in the Community* 20(4): 438–48.
Kwak, Kyunghwa. 2016. “An Evaluation of the Healthy Immigrant Effect with Adolescents in Canada: Examinations of Gender and Length of Residence.” *Social Science and Medicine* 157: 87–95. http://dx.doi.org/10.1016/j.socscimed.2016.03.017.
Lagarde, Mylene, and Duane Blaauw. 2009. “A Review of the Application and Contribution of Discrete Choice Experiments to Inform Human Resources Policy Interventions.” *Human Resources for Health* 7: 1–10.
Laher, Nazeefah. 2017. “Diversity, Aging, and Intersectionality in Ontario Home Care.” (May). www.wellesleyinstitute.com.
Lai, Daniel W.L., and Shireen Surood. 2010. “Types and Factor Structure of Barriers to Utilization of Health Services among Aging South Asians in Calgary, Canada.” *Canadian Journal on Aging* 29(2): 249–58.
Lancaster, K. 1966. “A New Approach to Consumer Theory Author (s): Kelvin J . Lancaster Reviewed Work (s): Source : Journal of Political Economy , Vol . 74 , No . 2 (Apr ., 1966), Pp . 132-157 Published by : The University of Chicago Press Stable URL : Http://Www.Jstor.” 74(2): 132–57.
Lancsar, Emily, Denzil G. Fiebig, and Arne Risa Hole. 2017. “Discrete Choice Experiments: A Guide to Model Specification, Estimation and Software.” *PharmacoEconomics*.
Lanoix, Monique. 2017. “No Longer Home Alone? Home Care and the Canada Health Act.” *Health Care Analysis* 25(2): 168–89.
Lapointe-Shaw, Lauren et al. 2021. “Homebound Status among Older Adult Home Care Recipients in Ontario, Canada.” *Journal of the American Geriatrics Society* (March): 1–11.
Laroche, Mireille. 2000. “Health Status and Health Services Utilization of Canada’s Immigrant and Non-Immigrant Populations.” *Canadian Public Policy* 26(1): 51–75.
Legislative Assembly of Ontario. 2022. “Bill 7, More Beds, Better Care Act, 2022.”
Lehnert, T. et al. 2018. “Preferences for Home- and Community-Based Long-Term Care Services in Germany: A Discrete Choice Experiment.” *European Journal of Health*

Economics.
Lehnert, T, M Heuchert, K Hussain, and HK Konig. 2018. "Stated Preferences for Long-Term Care: A Literature Review." *Ageing and Society*.
Lehnert, Thomas, Max Heuchert, Katharina Hussain, and Hans-Helmut König. 2019. "Stated Preferences for Long-Term Care: A Literature Review."
Lenhart, Otto. 2019. "The Effects of Health Shocks on Labor Market Outcomes: Evidence from UK Panel Data." *European Journal of Health Economics* 20(1): 83–98.
Lin, Elizabeth et al. 1996. "The Use of Mental Health Services in Ontario: Epidemiologic Findings." *Canadian Journal of Psychiatry* 41(9): 572–77.
Liu, Xing. 2016. *Applied Ordinal Logistic Regression Using Stata*. Thousand Oaks: Sage.
Locker, David, John Maggirias, and Carlos Quiñonez. 2011. "Income, Dental Insurance Coverage, and Financial Barriers to Dental Care among Canadian Adults." *Journal of Public Health Dentistry* 71(4): 327–34.
Louviere, Jordan J, David A Hensher, and Joffre D Swait. 2000. *Stated Choice Methods Analysis and Application*. Cambridge: University Press.
Luce, Mary F, John W Payne, and James R Bettman. 1999. "Emotional Trade-off Difficulty and Choice." *Journal of Marketing Research* 36(2): 143–59.
Ludwig, Jens, Greg Duncan, Lawrence K Atz, and Lisa Sanbonmatsu. 2014. "Moving to More Affluent Neighborhoods." : 1–4. macfound.org/HousingMatters.
Lundborg, Petter, NilssonMartin, and Johan Vikstrom. 2015. "Heterogeneity in the Impact of Health Shocks on Labour Outcomes: Evidence from Swedish Workers." *Oxford Economic Papers* 67(3): 715–39.
Ma, Xin. 2002. "The First Ten Years in Canada: A Multi-Level Assessment of Behavioural and Emotional Problems of Immigrant Children." *Canadian Public Policy* 28(3): 395–418.
Mackenzie, Kwame, Branka Agic, Andrew Tuck, and Michael Antwi. 2016. *The Case for Diversity : Building the Case to Improve Mental Health Services for Immigrant, Refugee, Ethno-Cultural and Racialized Populations : Report to the Mental Health Commission of Canada*. https://www.mentalhealthcommission.ca/sites/default/files/2016-10/case_for_diversity_oct_2016_eng.pdf.
Magnusson, D, and H Stattin. 1998. "Person-Context Interaction Theories." In *Handbook of Child Psychology: Vol. 1. Theoretical Models of Human Development*, New York: Wiley, 685–759.
De Maio, Fernando G. 2010. "Immigration as Pathogenic: A Systematic Review of the Health of Immigrants to Canada." *International Journal for Equity in Health* 9(1): 27. http://www.equityhealthj.com/content/9/1/27.
Manski, Charles F. 2010. "Measuring Expectations." *Society* 28(5): 244–57.
Marchildon, Gregory, and Livio Di Matteo. 2011. "Health Care Cost Drivers : The Facts, Spending and Workforce." *Canadian Institute for Health Information* (October 2011): 1–33.
Markides, Kyriakos S., and Sunshine Rote. 2019. "The Healthy Immigrant Effect and Aging in the United States and Other Western Countries." *Gerontologist* 59(2): 205–14.
Marmot, MG, AM Adelstein, and L Bulusu. 1984. "Lessons from the Study of Immigrant Mor-Tality." *The Lancet* 1(8392): 1455–57.
Martin, Danielle et al. 2018. "Canada's Universal Health-Care System: Achieving Its Potential." *The Lancet* 391(10131): 1718–35.
Martinez, William, and Antonio J. Polo. 2018. "Neighborhood Context, Family Cultural Values,

and Latinx Youth Externalizing Problems." *Journal of Youth and Adolescence* 47(11): 2440–52. http://dx.doi.org/10.1007/s10964-018-0914-6.

Masuda, Akihiko, Page L. Anderson, and Joshua Edmonds. 2012. "Help-Seeking Attitudes, Mental Health Stigma, and Self-Concealment Among African American College Students." *Journal of Black Studies* 43(7): 773–86.

Maulik, Pallab, William Eaton, and Catherine Bradshaw. 2009. "The Role of Social Network and Support in Mental Health Service Use: Findings From the Baltimore ECA Study." *Psychiatric Services* 60(9).

McKenzie, Kwame. 2019. "Improving Mental Health Services for Immigrant, Racialized, Ethno-Cultural and Refugee Groups." *Healthcare Papers* 18(2): 4–9.

McLeod Macey, Jennifer, and Grace Tong. 2017. "Children and Youth Mental Health Survey: Getting Help in Ontario." : 1–23. https://www.ipsos.com/en-ca/news-polls/CMHO-children-and-youth-mental-health-ontario.

Mehmetoglu, Mehmet, and Tor Georg Jakobsen. 2002. "Multilevel Analysis." In *Applied Statistics Using Stata - A Guide for the Social Sciences*, London: SAGE Publications Ltd (E-mail: info@sagepub.co.uk), 195–224.

Mendicino, Marco E.L. 2020. *2020 Annual Report to Parliament on Immigration*. Ottawa, ON.

Menezes, N. M., K. Georgiades, and M. H. Boyle. 2011. "The Influence of Immigrant Status and Concentration on Psychiatric Disorder in Canada: A Multi-Level Analysis." *Psychological Medicine* 41(10): 2221–31. https://www.cambridge.org/core/product/identifier/S0033291711000213/type/journal_article (January 15, 2020).

Mensah, George A. et al. 2017. "Decline in Cardiovascular Mortality: Possible Causes and Implications." *Circulation Research* 120(2): 366–80.

Mentzakis, Emmanouil, Manuel García-Goñi, Ana Rita Sequeira, and Francesco Paolucci. 2019. "Equity and Efficiency Priorities within the Spanish Health System: A Discrete Choice Experiment Eliciting Stakeholders Preferences." *Health Policy and Technology* 8(1): 30–41. https://doi.org/10.1016/j.hlpt.2019.01.003.

Min, Jong W., and Concepcion Barrio. 2009. "Cultural Values and Caregiver Preference for Mexican-American and Non-Latino White Elders." *Journal of Cross-Cultural Gerontology* 24(3): 225–39.

Ministry of Health and Long-Term Care. 2019. "Become an Ontario Health Team - Health Care Professionals - MOHLTC." http://health.gov.on.ca/en/pro/programs/connectedcare/oht/default.aspx LB - UQzQ (December 3, 2020).

Mittmann, Nicole et al. 2012. "Impact of Disability Status on Ischemic Stroke Costs in Canada in the First Year." *Can J Neurol Sci* 39(6): 793–800.

Morassaei, Sara et al. 2022. "The Role of Immigrant Admission Classes on the Health and Well-Being of Immigrants and Refugees in Canada: A Scoping Review." *Journal of Immigrant and Minority Health* (0123456789). https://doi.org/10.1007/s10903-022-01352-6.

Morgan M. Rogers-Carter1 2, Juan A Varela1 2 Katherine B Gribbons1 Anne F Pierce1 Morgan T McGoey1 Maureen Ritchey1, and John P Christianson1. 2017. "Health Impacts of the Great Recession: A Critical Review." *Physiology & behavior* 176(12): 139–48.

Moullan, Yasser, and Florence Jusot. 2014. "Why Is the 'healthy Immigrant Effect' Different between European Countries?" *European Journal of Public Health* 24(SUPPL.1): 80–86.

Mueller, Richard E, and N T Khuong Truong. 2022. "Wage and Basic Skills Inequality between

Immigrants by Immigration Admission Categories and Canadian Non-Immigrants." *Empirical Economics* 62(4): 1833–84. http://libaccess.mcmaster.ca/login?url=https://search.ebscohost.com/login.aspx?direct=true&db=eoh&AN=1956049&site=ehost-live&scope=site.

Munroe-Blum, Heather, Michael H. Boyle, David R. Offord, and Nicholas Kates. 1989. "IMMIGRANT CHILDREN: Psychiatric Disorder, School Performance, and Service Utilization." *American Journal of Orthopsychiatry* 59(4): 510–19.

Nascimento, Lucas R. et al. 2021. "Predictors of Return to Work after Stroke: A Prospective, Observational Cohort Study with 6 Months Follow-Up." *Disability and Rehabilitation* 43(4): 525–29.

Netten, A. et al. 2012. "Outcomes of Social Care for Adults: Developing a Preference-Weighted Measure." *Health Technology Assessment* 16(16): 1–165.

Ng, Edward. 2020. "COVID-19 Deaths among Immigrants: Evidence from the Early Months of the Pandemic." *Statistics Canada* (45280001): 1–9.

Ng, Edward, Kevin Pottie, and Denise Spitzer. 2011. "Official Language Proficiency and Selfreported Health among Immigrants to Canada." *Health Reports* 22(4).

Nieboer, Anna P., Xander Koolman, and Elly A. Stolk. 2010. "Preferences for Long-Term Care Services: Willingness to Pay Estimates Derived from a Discrete Choice Experiment." *Social Science and Medicine*.

O'Neill, Braden et al. 2022. "Socioeconomic and Immigration Status and COVID-19 Testing in Toronto, Ontario: Retrospective Cross-Sectional Study." *BMC Public Health* 22(1): 1–9. https://doi.org/10.1186/s12889-022-13388-2.

Ohle, Robert, Helena Bleeker, Krishan Yadav, and Jeffrey J. Perry. 2018. "The Immigrant Effect: Factors Impacting Use of Primary and Emergency Department Care - A Canadian Population Cross-Sectional Study." *Canadian Journal of Emergency Medicine* 20(2): 260–65.

Ojeda, Victoria D, Richard G Frank, Thomas G McGuire, and Todd P Gilmer. 2010. "Mental Illness, Nativity, Gender, and Labor Supply." 19: 396–421.

Okrainec, Karen, Chaim M. Bell, Simon Hollands, and Gillian L. Booth. 2015. "Risk of Cardiovascular Events and Mortality among a Population-Based Cohort of Immigrants and Long-Term Residents with Diabetes: Are All Immigrants Healthier and If so, for How Long?" *American Heart Journal* 170(1): 123–32. http://dx.doi.org/10.1016/j.ahj.2015.04.009.

Oldenburger, David et al. 2022. "COVID - 19 Issues in Long-Term Care in Ontario : A Document Analysis Enjeux Liés à La COVID-19 Dans Les Soins de Longue Durée En Ontario : Une Analyse de Documents." 17: 53–65.

Ontario's Regulatory Registry. 2022. *Fixing Long-Term Care Act, 2021*. Toronto, Canada. https://www.ontario.ca/laws/statute/21f39.

Ontario, Home Care. 2020. "New Poll Shows Over 90% of Ontario Seniors Want to Live at Home as They Age, and Want Government to Invest to Help Them Do It." https://www.newswire.ca/news-releases/new-poll-shows-over-90-of-ontario-seniors-want-to-live-at-home-as-they-age-and-want-government-to-invest-to-help-them-do-it-857341964.html.

———. 2021. "97 Per Cent of Ontario Seniors Want Increased Home Care Funding: Poll." https://www.newswire.ca/news-releases/97-per-cent-of-ontario-seniors-want-increased-home-care-funding-poll-805034645.html (March 3, 2022).

Ontario Long-term Care Association. 2021. "The Role of Long-Term Care." https://www.oltca.com/oltca/OLTCA/Public/LongTermCare/FactsFigures.aspx (August 12, 2022).

Ontario Long Term Care Association. 2019. "Facts and Figures." https://www.oltca.com/oltca/OLTCA/Public/LongTermCare/FactsFigures.aspx (December 3, 2020).

Ontario Ministry of Finance. 2019. "Ontario Population Projections, 2018-2046." : 2018–46.

Ontario Ministry of Health. 2021. "Ontario Welcomes New Long-Term Care Development Proposals." https://news.ontario.ca/en/release/1001009/ontario-welcomes-new-long-term-care-development-proposals.

———. 2022. "Long-Term Care Accommodation Costs and Subsidy."

———. *Ontario Health Teams: Guidance for Health Care Providers and Organizations*.

Osler, Merete, Solvej Mårtensson, Eva Prescott, and Kathrine Carlsen. 2014. "Impact of Gender, Co-Morbidity and Social Factors on Labour Market Affiliation after First Admission for Acute Coronary Syndrome. A Cohort Study of Danish Patients 2001-2009." *PLoS ONE* 9(1).

Patel, Asiya et al. 2019. "Double Burden of Rural Migration in Canada? Considering the Social Determinants of Health Related to Immigrant Settlement Outside the Cosmopolis." *International Journal of Environmental Research and Public Health* 16(5).

Patterson, Beth, Hmwe Hmwe Kyu, and Katholiki Georgiades. 2013. "Age at Immigration to Canada and the Occurrence of Mood, Anxiety, and Substance Use Disorders." *Canadian Journal of Psychiatry* 58(4): 210–17.

Pelley, Lauren. 2022. "Communities with Low Incomes, Immigrants, Essential Workers Hardest Hit by COVID-19: Study." *CBC News*.

Phillips, Susan P., and Janelle Yu. 2021. "Is Anxiety/Depression Increasing among 5-25 Year-Olds? A Cross-Sectional Prevalence Study in Ontario, Canada, 1997-2017." *Journal of Affective Disorders* 282(November 2020): 141–46. https://doi.org/10.1016/j.jad.2020.12.178.

Pickett, Kate E., and Richard G. Wilkinson. 2008. "People like Us: Ethnic Group Density Effects on Health." *Ethnicity and Health* 13(4): 321–34.

Pignone, Michael P. et al. 2014. "Using a Discrete Choice Experiment to Inform the Design of Programs to Promote Colon Cancer Screening for Vulnerable Populations in North Carolina." *BMC Health Services Research* 14(1): 1–9.

Pinchas-Mizrachi, Ronit, Yaakov Naparstek, Ronit Nirel, and Ehud Kukia. 2020. "The 'Sick Immigrant' and 'Healthy Immigrant' Phenomenon among Jews Migrating from the USSR to Israel." *SSM - Population Health* 12: 100694. https://doi.org/10.1016/j.ssmph.2020.100694.

Pottie, Kevin et al. 2015. "Do First Generation Immigrant Adolescents Face Higher Rates of Bullying, Violence and Suicidal Behaviours Than Do Third Generation and Native Born?" *Journal of Immigrant and Minority Health* 17(5): 1557–66. http://dx.doi.org/10.1007/s10903-014-0108-6.

Puyat, Joseph H. 2013. "Is the Influence of Social Support on Mental Health the Same for Immigrants and Non-Immigrants?" *Journal of Immigrant and Minority Health* 15(3): 598–605.

Quach, Bradley I. et al. 2021. "Comparison of End-of-Life Care between Recent Immigrants and Long-Standing Residents in Ontario, Canada." *JAMA Network Open* 4(11): 1–13.

Quaife, Matthew, Fern Terris-Prestholt, Gian Luca Di Tanna, and Peter Vickerman. 2018. "How Well Do Discrete Choice Experiments Predict Health Choices? A Systematic Review and Meta-Analysis of External Validity." *European Journal of Health Economics* 19(8): 1053–66. https://doi.org/10.1007/s10198-018-0954-6.

Qureshi, Danial et al. 2021. "Describing Differences Among Recent Immigrants and Long-Standing Residents Waiting for Long-Term Care: A Population-Based Retrospective Cohort Study." *Journal of the American Medical Directors Association* 22(3): 648–55. https://doi.org/10.1016/j.jamda.2020.07.018.

Racine, Nicole et al. 2021. "Global Prevalence of Depressive and Anxiety Symptoms in Children and Adolescents during COVID-19: A Meta-Analysis." *JAMA Pediatrics* 175(11): 1142–50.

Raudenbush, S.W., and A.S. Bryk. 2002. *Hierarchial Linear Models: Applications and Data Analysis Methods (2nd Ed.)*. Thousand Oaks: Sage.

Ridde, Valéry et al. 2020. "Unmet Healthcare Needs among Migrants without Medical Insurance in Montreal, Canada." *Global Public Health* 15(11): 1603–16.

Roberts, Tessa et al. 2018. "Factors Associated with Health Service Utilisation for Common Mental Disorders: A Systematic Review." *BMC Psychiatry* 18(1): 1–19.

Robinson, Stephanie M. et al. 2015. "Home, Please: A Conjoint Analysis of Patient Preferences after a Bad Hip Fracture." *Geriatrics and Gerontology International* 15(10): 1165–70.

Rogers, Wendy A., Widya A. Ramadhani, and Maurita T. Harris. 2020. "Defining Aging in Place: The Intersectionality of Space, Person, and Time." *Innovation in Aging* 4(4): 1–11.

Rosenberg, Julia et al. 2020. "Disparities in Mental and Behavioral Health Treatment for Children and Youth in Immigrant Families." *Academic Pediatrics* 20(8): 1148–56. https://doi.org/10.1016/j.acap.2020.06.013.

Ross, F, RE Mueller, and Arthur Sweetman. 2016. "The Cultural Determinants of Access to Post-Secondary (Higher) Education in Canada: Empirical Evidence and Policy Implications." In *Access and Expansion Post-Massification: Opportunities and Barriers to Further Growth in Higher Education Participation,* eds. BWA JongBloed and H Vossensteyn. New York: Routledge, 150–78.

Rousseau, Cécile, and Rochelle L. Frounfelker. 2019. "Mental Health Needs and Services for Migrants: An Overview for Primary Care Providers." *Journal of Travel Medicine* 26(2): 1–8.

Rousseau, Cécile, Ghayda Hassan, Toby Measham, and Myrna Lashley. 2008. "Prevalence and Correlates of Conduct Disorder and Problem Behavior in Caribbean and Filipino Immigrant Adolescents." *European Child and Adolescent Psychiatry* 17(5): 264–73.

Runnels, Vivian. 2017. *Understanding Immigrant Seniors' Needs and Priorities for Health Care*.

Salam, Zoha et al. 2022. "Systemic and Individual Factors That Shape Mental Health Service Usage Among Visible Minority Immigrants and Refugees in Canada: A Scoping Review." *Administration and Policy in Mental Health and Mental Health Services Research* (0123456789). https://doi.org/10.1007/s10488-021-01183-x.

Salloum, Ramzi G., Elizabeth A. Shenkman, Jordan J. Louviere, and David A. Chambers. 2017. "Application of Discrete Choice Experiments to Enhance Stakeholder Engagement as a Strategy for Advancing Implementation: A Systematic Review." *Implementation Science* 12(1): 1–12.

Samuelson-Kiraly, Claire et al. 2020. "Access and Quality of Health Care in Canada: Insights from 1998 to the Present." *Healthcare Management Forum* 33(6): 253–58.

Sandelowski, M. 2000. "Focus on Research Methods: Whatever Happened to Qualitative Description?" *Research in Nursing and Health* 23(4): 334–40.

Sarría-Santamera, Antonio, Ana Isabel Hijas-Gómez, Rocío Carmona, and Luís Andrés Gimeno-Feliú. 2016. "A Systematic Review of the Use of Health Services by Immigrants and Native Populations." *Public Health Reviews* 37(1). http://dx.doi.org/10.1186/s40985-016-0042-3.

Saunders, Natasha Ruth, Michael Lebenbaum, et al. 2018. "Trends in Mental Health Service Utilisation in Immigrant Youth in Ontario, Canada, 1996-2012: A Population-Based Longitudinal Cohort Study." *BMJ open* 8(9).

Saunders, Natasha Ruth, Peter J. Gill, et al. 2018. "Use of the Emergency Department as a First Point of Contact for Mental Health Care by Immigrant Youth in Canada: A Population-Based Study." *Cmaj* 190(40): E1183–91.

Saunders, Natasha Ruth et al. 2022. "Changes in Hospital-Based Care Seeking for Acute Mental Health Concerns among Children and Adolescents during the COVID-19 Pandemic in Ontario, Canada, Through September 2021." *JAMA Network Open* 5(7): E2220553.

Savaş, Özge et al. 2021. "All Immigrants Are Not Alike : Intersectionality Matters in Views of Immigrant Groups Non-Technical Summary An Intersectional Perspective on Immigrant Groups."

Sawamura, Kanae, Hiroshi Sano, and Miharu Nakanishi. 2015. "Japanese Public Long-Term Care Insured: Preferences for Future Long-Term Care Facilities, Including Relocation, Waiting Times, and Individualized Care." *Journal of the American Medical Directors Association* 16(4): 350.e9-350.e20. http://dx.doi.org/10.1016/j.jamda.2015.01.082.

Sellström, Eva, and Sven Bremberg. 2006. "The Significance of Neighbourhood Context to Child and Adolescent Health and Well-Being: A Systematic Review of Multilevel Studies." *Scandinavian journal of public health* 34(5): 544–54. http://www.ncbi.nlm.nih.gov/pubmed/16990166 (January 14, 2020).

Sheehan, David V. et al. 2010. "Reliability and Validity of the Mini International Neuropsychiatric Interview for Children and Adolescents (MINI-KID)." *Journal of Clinical Psychiatry* 71(3): 313–26.

Shields, Margot et al. 2021. "Symptoms of Major Depressive Disorder during the Covid-19 Pandemic: Results from a Representative Sample of the Canadian Population." *Health Promotion and Chronic Disease Prevention in Canada* 41(11): 340–58.

Shim, R.S. et al. 2009. "Race-Ethnicity as a Predictor of Attitudes Toward Mental Health Treatment Seeking." *Psychiatr Serv.* 60(10): 1336–41. file:///C:/Users/Carla Carolina/Desktop/Artigos para acrescentar na qualificação/The impact of birth weight on cardiovascular disease risk in the.pdf.

Shortt, Janet. 2014. "A Historical Perspective of the Effect of the Great Recession on Hospitals." *AORN Journal* 100(2): 177–87.

Smith, James P. 1999. "Healthy Bodies and Thick Wallets: The Dual Relation between Health and Economic Status." *Journal of Economic Perspectives* 13(2): 145–66.

Sohail, Qazi Zain et al. 2015. "The Risk of Ischemic Heart Disease and Stroke Among Immigrant Populations: A Systematic Review." *Canadian Journal of Cardiology* 31(9): 1160–68. http://dx.doi.org/10.1016/j.cjca.2015.04.027.

Soril, Lesley JJ, Ted Adams, and Madeline Phipps-Taylor. 2014. "Is Canadian Healthcare Affordable ? A Comparative Analysis of the Canadian Healthcare System from 2004 to 2014 Les Soins de Santé Sont-Ils Abordables Au Canada ? Analyse Comparative Du Système de Santé Canadien de 2004 à 2014." *Healthcare Policy* 13(1): 43–58.

Spoont, Michele R. et al. 2014. "Impact of Treatment Beliefs and Social Network Encouragement on Initiation of Care by VA Service Users with PTSD." *Psychiatric Services* 65(5): 654–62.

Stafford, Mai, Bruce K. Newbold, and Nancy A. Ross. 2011. "Psychological Distress among Immigrants and Visible Minorities in Canada: A Contextual Analysis." *International Journal of Social Psychiatry* 57(4): 428–41.

Statistics Canada. 2016. "2016 Census Topic: Age and Sex." https://www12.statcan.gc.ca/census-recensement/2016/rt-td/as-eng.cfm (February 1, 2020).

———. 2017a. "Census in Brief Children with an Immigrant Background: Bridging Cultures." (98): 1–8.

———. 2017b. "Illustrated Glossary - Census Tract (CT)." https://www150.statcan.gc.ca/n1/pub/92-195-x/2016001/geo/ct-sr/ct-sr-eng.htm (January 10, 2022).

———. 2018. "Immigration and Ethnocultural Diversity in Canada."

———. 2021. "Tax Filers and Dependants with Income by Total Income, Sex and Age." https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1110000801 (August 12, 2022).

Steele, Leah S, Carolyn S Dewa, and Elizabaeth Lin. 2007. "Education Level , Income Level and Mental Health Services Use in Canada : Associations and Policy Implications Niveau de Scolarité , Niveau de Revenu et Utilisation Répercussions Sur Les Associations et Les Politiques." *Health Care Policy* 3(1): 96–106.

Stepner, Michael. 2019. "The Insurance Value of Redistributive Taxes and Transfers."

Straus, Sharon E., Eric K.C. Wong, Trina Thorne, and Carole Estabrooks. 2021. "Recommendations from Long-Term Care Reports, Commissions, and Inquiries in Canada." *F1000Research* 10: 1–17.

Stronks, K., H. Van de Mheen, J. Van den Bos, and J. P. Mackenbach. 1997. "The Interrelationship between Income, Health and Employment Status." *International Journal of Epidemiology* 26(3): 592–600.

Sweetman, Arthur. 2017. "Canada's Immigration System: Lessons for Europe?" *Intereconomics* 52(5): 277–84.

Sweetman, Arthur, and Casey Warman. 2013a. "Canada's Immigration Selection System and Labour Market Outcomes." *Canadian Public Policy* 39(SUPPL.1).

———. 2013b. "Canada's Immigration Selection System and Labour Market Outcomes." *Canadian Public Policy* 39(SUPPL.1).

Tanaka, Atsuko. 2021. "The Effects of Sudden Health Reductions on Labor Market Outcomes: Evidence from Incidence of Stroke." *Health Economics (United Kingdom)* 30(6): 1480–97.

The Government of Canada. 2006. Minister of Public Works and Government Services Canada *The Human Face of Mental Health and Mental Illness in Canada 2006*. http://www.phac-aspc.gc.ca/publicat/human-humain06/index-eng.php.

The Standing Senate Committee on Social Affairs, Science and Technology. 2006. The Senate *Transforming Mental Health , Mental Illness and Addiction Services in Canada*.

Thornicroft, Graham, and Michele Tansella. 2004. "Components of a Modern Mental Health Service: A Pragmatic Balance of Community and Hospital Care. Overview of Systematic Evidence." *British Journal of Psychiatry* 185(OCT.): 283–90.

Torres, Sandra. 2009. "Vignette Methodology and Culture-Relevance: Lessons Learned through a Project on Successful Aging with Iranian Immigrants to Sweden." *Journal of Cross-Cultural Gerontology* 24(1): 93–114.

Trevisan, Elisabetta, and Francesca Zantomio. 2016. "The Impact of Acute Health Shocks on the Labour Supply of Older Workers: Evidence from Sixteen European Countries." *Labour Economics* 43: 171–85. http://dx.doi.org/10.1016/j.labeco.2016.04.002.

Tricco, Andrea C. et al. 2015. "A Scoping Review of Rapid Review Methods." *BMC Medicine* 13(1). http://dx.doi.org/10.1186/s12916-015-0465-6.

Tu, Jack V. et al. 2015. "Incidence of Major Cardiovascular Events in Immigrants to Ontario, Canada: The CANHEART Immigrant Study." *Circulation* 132(16): 1549–59.

Um, Seong-gee. 2021. "Reforming Long-Term Care Requires a Diversity and Equity Approach." *Policy Options*. https://policyoptions.irpp.org/magazines/may-2021/reforming-long-term-care-requires-a-diversity-and-equity-approach/.

Um, Seong-gee, and Naomi Lightman. 2016. "Ensuring Healthy Aging for All Home Care Access for Diverse Senior." (July).

Um, Seong-Gee, and Naomi Lightman. 2017. "Seniors' Health in the GTA: How Immigration, Language, and Racialization Impact Seniors' Health." *Wellesley Institute* (May). www.wellesleyinstitute.com.

Vang, Zoua M., Jennifer Sigouin, Astrid Flenon, and Alain Gagnon. 2017. "Are Immigrants Healthier than Native-Born Canadians? A Systematic Review of the Healthy Immigrant Effect in Canada." *Ethnicity and Health* 22(3): 209–41. http://dx.doi.org/10.1080/13557858.2016.1246518.

Vayda, Eugene, and Raisa B Deber. 1984. "The Canadian Health Care System: An Overview." *Soc Sci Med* 18(3): 191–97.

Veldwijk, Jorien et al. 2014. "The Effect of Including an Opt-out Option in Discrete Choice Experiments." *PLoS ONE* 9(11).

Viruell-Fuentes, Edna A., Patricia Y. Miranda, and Sawsan Abdulrahim. 2012. "More than Culture: Structural Racism, Intersectionality Theory, and Immigrant Health." *Social Science and Medicine* 75(12): 2099–2106. http://dx.doi.org/10.1016/j.socscimed.2011.12.037.

Vogel, D.L. et al. 2007. "Seeking Help From a Mental Health Professional: The Influence of One's Social Network." *Journal of Clinical Psychology* 63(3): 233–45.

Vyas, Manav V. et al. 2017. "Lost Productivity in Stroke Survivors: An Econometrics Analysis." *Neuroepidemiology* 47(3–4): 164–70.

Vyas, Manav V., Claire De Oliveira, Audrey Laporte, and Moira K. Kapral. 2019. "The Association between Stroke, Integrated Stroke Systems, and the Employability and Productivity of Canadian Stroke Survivors." *Neuroepidemiology* 53(3–4): 209–19.

Waddell, Charlotte et al. 2019. "2014 Ontario Child Health Study Findings: Policy Implications for Canada." *Canadian Journal of Psychiatry* 64(4): 227–31.

Walsh, Sharon et al. 2019. "Public Preferences for Home Care Services for People with Dementia: A Discrete Choice Experiment on Personhood." *Social Science & Medicine*: 112675. https://doi.org/10.1016/j.socscimed.2019.112675.

Walter Rasugu Omariba, D., Nancy A. Ross, Claudia Sanmartin, and Jack T. Tu. 2014. "Neighbourhood Immigrant Concentration and Hospitalization: A Multilevel Analysis of Cardiovascular-Related Admissions in Ontario Using Linked Data." *Canadian Journal of Public Health* 105(6): e404–11.

Wang, Lu. 2011. "Analysing Spatial Accessibility to Health Care: A Case Study of Access by Different Immigrant Groups to Primary Care Physicians in Toronto." *Annals of GIS* 17(4): 237–51.

Wang, Lu, Sepali Guruge, and Gelsomina Montana. 2019. "Older Immigrants' Access to

Primary Health Care in Canada: A Scoping Review." *Canadian Journal on Aging* 38(2): 193–209.

Wang, P et al. 2007. "Use of Mental Health Services for Anxiety, Mood, and Substance Disorders in 17 Countries in the WHO World Mental Health Surveys." *Lancet* 370: 841–50.

White, Kellee, Jennifer S. Haas, and David R. Williams. 2012. "Elucidating the Role of Place in Health Care Disparities: The Example of Racial/Ethnic Residential Segregation." *Health Services Research* 47(3 PART 2): 1278–99.

Whitley, Rob et al. 2017. "Mental Health Status, Health Care Utilisation, and Service Satisfaction among Immigrants in Montreal: An Epidemiological Comparison." *Canadian Journal of Psychiatry* 62(8).

Wiens, K et al. 2020. "A Growing Need for Youth Mental Healthservices in Canada: Examining Trends Inyouth Mental Health from 2011 to 2018." *Epidemiology and PsychiatricSciences* 29(e115): 1–9.

Wilkinson, Andrea et al. 2019. "Overall Quality Performance of Long-Term Care Homes in Ontario." *Healthcare quarterly* 22(2).

Wolff, Jennifer L., Judith D. Kasper, and Andrew D. Shore. 2008. "Long-Term Care Preferences among Older Adults: A Moving Target?" *Journal of Aging and Social Policy* 20(2): 182–200.

Wong, Irene O.L., Benjamin J. Cowling, Su Vui Lo, and Gabriel M. Leung. 2009. "A Multilevel Analysis of the Effects of Neighbourhood Income Inequality on Individual Self-Rated Health in Hong Kong." *Social Science and Medicine* 68(1): 124–32. http://dx.doi.org/10.1016/j.socscimed.2008.09.064.

Wong, Suzy L., Heather Gilmour, and Pamela L. Ramage-Morin. 2016. "Alzheimer's Disease and Other Dementias in Canada." *Health Reports* 27(5): 11–16.

Zaresani, Arezou. 2018. "Return-to-Work Policies and Labor Supply In." *AEA Papers and Proceedings* 108: 272–76.

Zimmer, David M. 2015. "Employment Effects of Health Shocks: The Role of Fringe Benefits." *Bulletin of Economic Research* 67(4): 346–58.

Zimmerman, Frederick J. 2005. "Social and Economic Determinants of Disparities in Professional Help-Seeking for Child Mental Health Problems: Evidence from a National Sample." *Health Services Research* 40(5 I): 1514–33.

Zondervan-Zwijnenburg, Maria A.J. et al. 2020. "Parental Age and Offspring Childhood Mental Health: A Multi-Cohort, Population-Based Investigation." *Child Development* 91(3): 964–82.

Table 1: ICD-10 codes to identify individuals experiencing cardiovascular and cerebrovascular health shocks

Event	ICD-10 Code
Atrial Myocardial Infarction	I21.x
Stroke	I64.x
Cardiac Arrest	I46.x
	I49.x
Cardiac Infarction	I63.x
Intracerebral Hemorrhage	I61.x
	I60.x
Heart Failure	I50.x

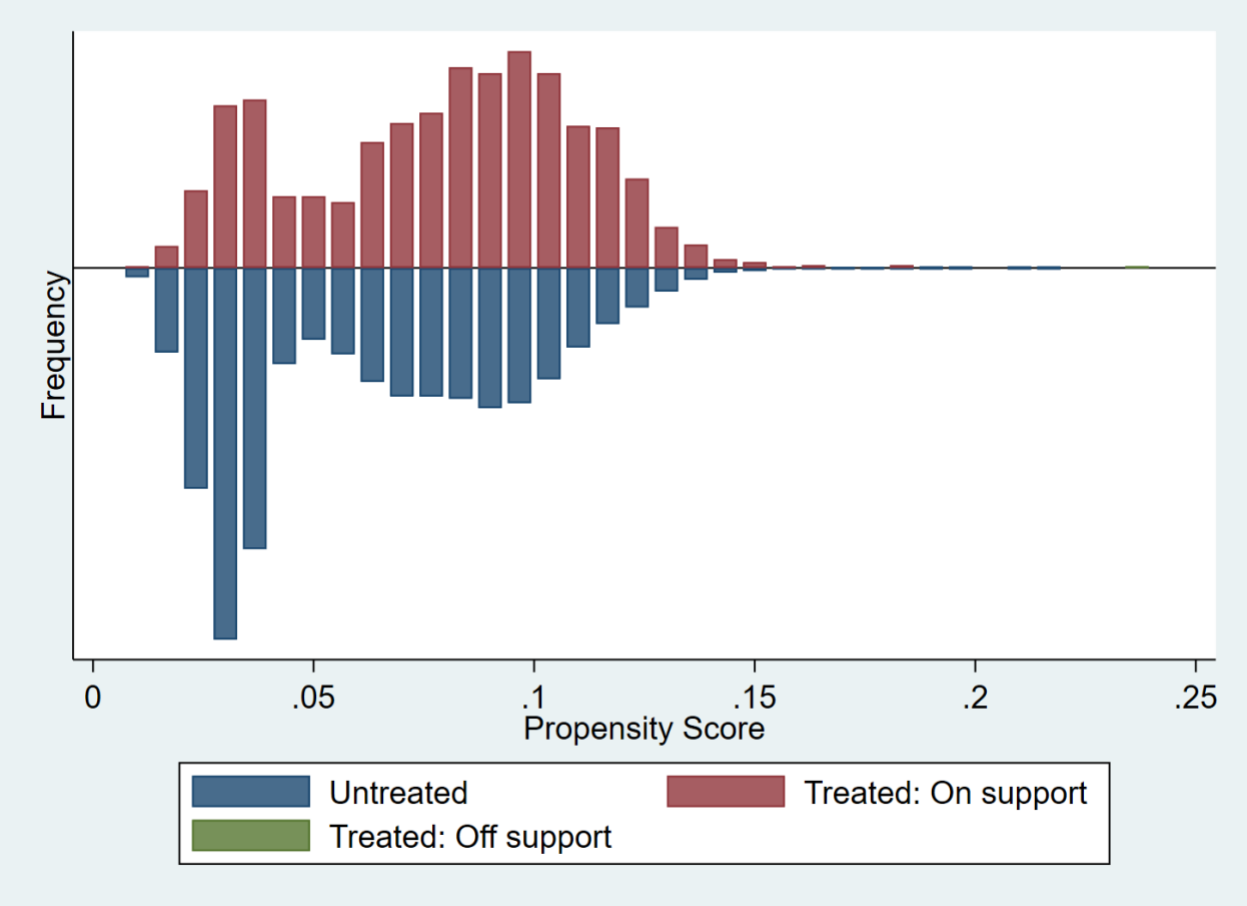


Figure 1: Distribution of propensity scores
The "untreated" group is the comparison group that did not experience a cardiovascular or cerebrovascular health shock and the "treated" group is the treatment group that experienced a cardiovascular or cerebrovascular health shock. People "off support" in the treatment group were those who did not have common support and were deleted from the analysis while people "on support" had a match and were included in the analysis.

Table 2: Covariate imbalance testing results

Coefficient	Unmatched Matched	Treated	Control	% Reduction Bias	t	p<|t|
Age	U	42.44	41.65		2.70	0.01
	M	42.42	42.42	99.8	0.00	1.00
Female	U	0.48	0.49		-0.23	0.82
	M	0.48	0.48	72.5	-0.05	0.96
Widowed/divorced/separated	U	0.10	0.08		1.89	0.06
	M	0.10	0.10	98.9	0.01	0.99
Single	U	0.24	0.24		0.17	0.86
	M	0.24	0.24	94.2	0.01	0.99
Long-term immigrant	U	0.85	0.81		4.11	0.00
	M	0.85	0.85	98	0.07	0.95
Trades/diploma	U	0.37	0.34		2.60	0.01
	M	0.37	0.37	97.9	0.04	0.97
Bachelors	U	0.06	0.06		-0.84	0.40
	M	0.06	0.06	90.9	-0.06	0.95
Post-grad with no degree	U	0.15	0.18		-2.91	0.00
	M	0.15	0.15	99.3	-0.02	0.99
Post-grad degree	U	0.04	0.05		-2.03	0.04
	M	0.04	0.04	97	-0.05	0.96
Family members	U	0.34	0.33		0.29	0.77
	M	0.33	0.34	83.3	-0.04	0.97
Refugees	U	0.18	0.16		1.95	0.05
	M	0.18	0.18	97.9	0.03	0.98
Latin America/West Indies	U	0.12	0.12		0.42	0.67
	M	0.12	0.13	88.4	-0.04	0.97
Europe/Australasia	U	0.25	0.24		0.64	0.52
	M	0.25	0.25	99	0.00	1.00
Africa	U	0.07	0.07		-0.25	0.81
	M	0.07	0.07	92.7	-0.01	0.99
Middle East	U	0.07	0.07		-0.98	0.33
	M	0.07	0.07	95.9	-0.03	0.98
East Asia	U	0.32	0.32		-0.53	0.59
	M	0.32	0.32	95.5	-0.02	0.99
Southeast Asia	U	0.15	0.15		0.11	0.92
	M	0.16	0.15	28.2	0.06	0.96
ON	U	0.66	0.44		17.67	0.00
	M	0.66	0.66	98.9	0.15	0.88
Prairie provinces	U	0.13	0.13		0.27	0.79

	M	0.13	0.13	-64.2	0.33	0.74
British Colombia	U	0.19	0.41		-17.44	0.00
	M	0.19	0.20	97.2	-0.44	0.66
Children under age of 5	U	0.16	0.18		-2.21	0.03
	M	0.16	0.16	98.6	-0.02	0.98
Employment income	U	10.39	10.35		1.67	0.10
	M	10.39	10.39	100	0.00	1.00

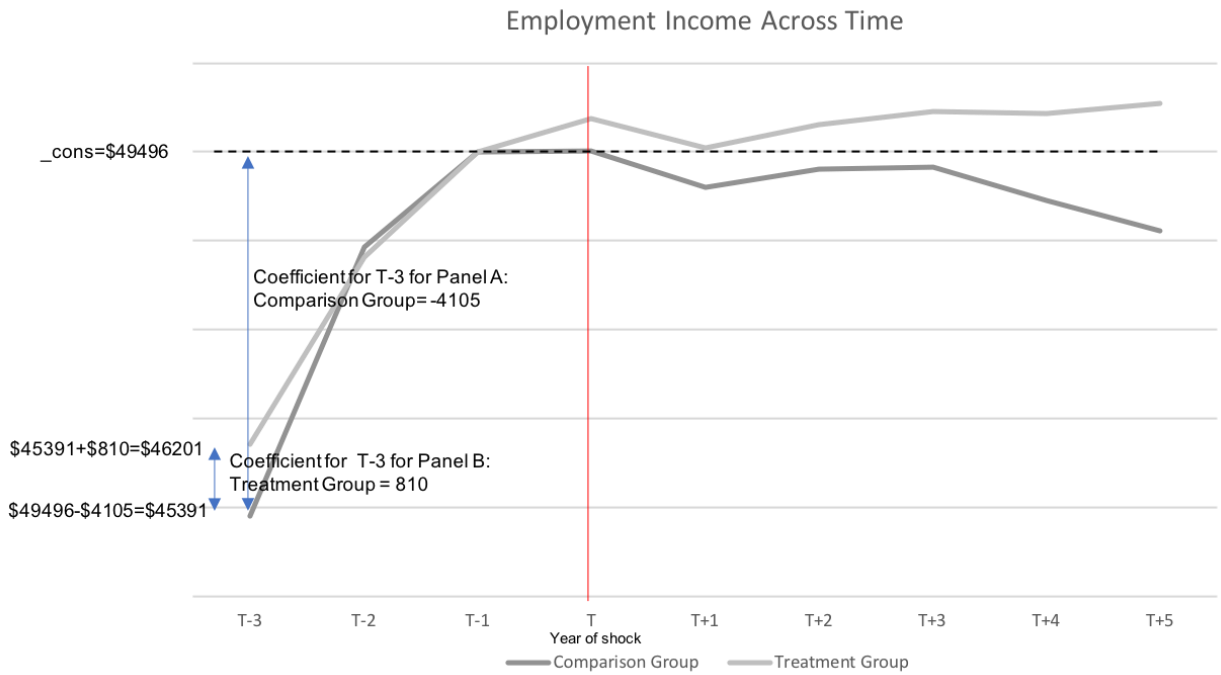


Figure 2: Graphical Representation of Regression Estimates

Table 3. Fixed-effects regressions of income variables by cardiovascular or cerebrovascular (CC) health shock (n=25785)

	Employment income	Government income	Total income	Household income
_cons	49496 [a]	2659 [a]	54092 [a]	96144 [a]
	[-49085, 49907]	[2571, 2748]	[53671, 54512]	[95322, 96967]
	Panel A: Non-CC health shock, difference from T-1			
t-3	-4105 [a]	-168 [a]	-4586 [a]	-5816 [a]
	[-4431, -3780]	[-240, -95]	[-4898, -4274]	[-6465, -5167]
t-2	-1074 [a]	-114 [a]	-1442 [a]	-1125 [a]
	[-1319, -829]	[-178, -49]	[-1676, -1208]	[-1632, -618]
t-1	Referent	Referent	Referent	Referent
t	11	7	362 [a]	207
	[-230, 253]	[-56, 71]	[122, 602]	[-288, 703]
t+1	-399 [b]	-57	260	-218
	[-740, -58]	[-132, 18]	[-73, 593]	[-876, 440]
t+2	-194	84 [b]	978 [a]	-195
	[-594, 205]	[3, 165]	[591, 1365]	[-961, 570]
t+3	-170	255 [a]	1533 [a]	-426
	[-622, 282]	[170, 339]	[1102, 1965]	[-1288, 436]
t+4	-551 [b]	590 [a]	1801 [a]	-803 [c]
	[-1051, -52]	[498, 682]	[1330, 2273]	[-1743, 138]
t+5	-886 [a]	892 [a]	2164 [a]	-1128 [b]
	[-1422, -350]	[795, 990]	[1657, 2672]	[-2140, -115]
	Panel B: Difference from non-CC health shock for those with CC health shock			
t-3	810	107	804	1948
	[-359, 1978]	[-173, 387]	[-335, 1944]	[-405, 4301]
t-2	-109	-72	-368	-18
	[-978, 759]	[-291, 148]	[-1184, 448]	[-2623, 2586]
t-1	Referent	Referent	Referent	Referent
t	364	80	542	440
	[-536, 1263]	[-158, 318]	[-363, 1447]	[-780, 1659]
t+1	440	65	424	-31
	[-780, 1659]	[-202, 332]	[-822, 1672]	[-2315, 2252]
t+2	503	-99	416	-18
	[-884, 1891]	[-370, 171]	[-985, 1817]	[-2623, 2586]
t+3	625	-145	796	648
	[-895, 2145]	[-432, 142]	[-746, 2337]	[-2247, 3543]
t+4	981	-93	1321	867
	[-677, 2639]	[-405, 220]	[-311, 2953]	[-2343, 4077]
t+5	1436	-94	1794 [b]	1820
	[-383, 3255]	[-440, 251]	[6, 3582]	[-1685, 5325]

Table 4. Fixed-effects regressions of income variables by cardiovascular or cerebrovascular (CC) health shock, stratified by sex (male n=13260, female n=12525)

	Employment income	Government income	Total income	Household income
Sex				
Male				
_cons	56001 [a]	1725 [a]	59686 [a]	95991 [a]
	[55387, 56616]	[1617,1833]	[59062, 60310]	[94909, 97074]
	Panel A: Non-CC health shock, difference from T-1			
t-3	-4251 [a]	-186 [a]	-4801 [a]	-6201 [a]
	[-4747, -3755]	[-279,-93]	[-5278, -4323]	[-7066, -5336]
t-2	-1078 [a]	-153 [a]	-1441 [a]	-1385 [a]
	[-1444, -771]	[-236,-71]	[-1791, -1091]	[-2055, -714]
t-1	referent	referent	referent	referent
t	126	41	496 [a]	849 [b]
	[-244, 495]	[-38,121]	[125, 867]	[190, 1509]
t+1	-322	-18	451 [c]	753 [c]
	[-845, 202]	[-113,78]	[-61, 963]	[-137, 1643]
t+2	-146	182 [a]	1273 [a]	784
	[-764, 472]	[77,288]	[682, 1864]	[-251, 1819]
t+3	-268	366 [a]	1697 [a]	670
	[-974, 438]	[259,474]	[1033, 2362]	[-512, 1853]
t+4	-880 [b]	676 [a]	1830 [a]	51
	[-1663, -97]	[558,794]	[1103, 2558]	[-1237, 1340]
t+5	-1229 [a]	843 [a]	2128 [a]	17
	[-2066, -391]	[720,966]	[1349, 2906]	[-1363, 1396]
	Panel B: Difference from non-CC health shock for those with CC health shock			
t-3	1301	42	1076	2993 [c]
	[-486, 3087]	[-297, 380]	[-682, 2835]	[-445, 6430]
t-2	-159	-2	-436	1364
	[-1507, 1189]	[-272, 268]	[-1671, 800]	[-1007, 3735]
t-1	referent	referent	referent	referent
t	810	49	1048	387
	[-551, 2170]	[-249, 347]	[-315, 2411]	[-1988, 2763]
t+1	1688 [c]	27	451	1196
	[-115, 3491]	[-289, 344]	[-61, 963]	[-1741, 4134]
t+2	1842 [c]	-112	1273	2381
	[-235, 3291]	[-443, 221]	[682, 1865]	[-1145, 5906]
t+3	1920 [c]	-254	1697	2784
	[-298, 4138]	[-585, 77]	[1033, 2362]	[-1047, 6616]
t+4	2382 [c]	-280	1830 [c]	3540
	[-112, 4876]	[-652, 91]	[1103, 2558]	[-741, 7820]
t+5	2100	-229	2128	2911
	[-642, 4842]	[-617, 159]	[1349, 2906]	-1717, 7540]
Female				
_cons	42704 [a]	3665 [a]	48279 [a]	96360 [a]
	[42163, 43244]	[3522,3808]	[47720, 48838]	[95118, 97602]
	Panel A: Non-CC health shock, difference from T-1			
t-3	-3940 [a]	-160 [a]	-4367 [a]	-5437 [b]
	[-4362, -3519]	[-273,-46]	[-4768, -3965]	[-6399, -4476]
t-2	-1050 [a]	-96 [c]	222 [a]	-825
	[-1376, -725]	[-197,4]	[-87, 531]	[-1576, -74]
t-1	Referent	Referent	Referent	Referent

t	-133	-6	222	-440
	[-448, 181]	[-108,96]	[-87, 531]	[-1170, 291]
t+1	-540 [b]	-79	9	-1109 [b]
	[-967, -113]	[-197,39]	[-407, 425]	[-2062, -156]
t+2	-398	8	557 [b]	-1082 [c]
	[-900, 104]	[-117,134]	[61, 1053]	[-2192, 29]
t+3	-250	181 [a]	1257 [a]	-1367 [b]
	[-805, 305]	[47,314]	[715, 1799]	[-2596, -136]
t+4	-429	542 [a]	1631 [a]	-1488 [b]
	[-1040, 182]	[398,687]	[1043, 2218]	[-2834, -141]
t+5	-793 [b]	1018 [a]	2060 [a]	-2137 [a]
	[-1453, -133]	[862,1175]	[1421, 2700]	[-3602, -672]
Panel B: Difference from non-CC health shock for those with CC health shock				
t-3	275	189	524	863
	[-1209, 1758]	[-265, 642]	[-901, 1949]	[-2326, 4051]
t-2	-781	-120	-294	676
	[-1148, 997]	[-472,231]	[-1346, 758]	[-1876, 3228]
t-1	referent	Referent	Referent	referent
t	-92	-6	-4	-2615 [b]
	[-1254, 1071]	[-108,96]	[-1181, 1173]	[-5243, 12]
t+1	-840	85	-683	-1496
	[-2461, 781]	[-351, 521]	[-2322, 956]	[-5013, 2022]
t+2	-781	-115	-526	-2751
	[-2593, 1032]	[-548, 318]	[-2386, 1334]	[-6581, 1078]
t+3	-578	-74	-72	-1874
	[-2641, 1484]	[-552, 403]	[-2096, 1952]	[-6226, 2478]
t+4	-291	64	519	-2227
	[-2447, 1866]	[-447, 575]	[-1618, 2656]	[-7020, 2565]
t+5	999	-23	1466	434
	[-1363, 3361]	[-605, 560]	[-845, 3777]	[-4858, 5725]

Table 5. Fixed-effects regressions of income variables by cardiovascular or cerebrovascular (CC) health shock, stratified by migrant class (economic n=13010, family n=8550, refugee n=4225)

	Employment income	Government income	Total income	Household income
Economic				
_cons	53141 [a]	2088 [a]	57698 [a]	105843 [a]
	[52491,53791]	[1964, 2212]	[57017, 58378]	[104559,107127]
	Panel A: Non-CC health shock, difference from T-1			
t-3	-4649 [a]	-143 [a]	-5086 [a]	-7214 [a]
	[-5141,-4158]	[-239, -45]	[-5561, -4611]	[-8205,-6223]
t-2	-1308	-112 [b]	-1701 [a]	-1482 [a]
	[-1673,-943]	[-198, -26]	[-2056, -1347]	[-2246, -717]
t-1	Referent	Referent	Referent	Referent
t	46	-0	437 [b]	86
	[-322,415]	[-85, 84]	[74, 799]	[-684,855]
t+1	-162	-21	682 [a]	-260
	[-678,355]	[-124, 82]	[185, 1179]	[-1272, 752]
t+2	-56	115 [b]	1406 [a]	-393
	[-672,560]	[10, 221]	[813, 1999]	[-1566, 780]
t+3	-99	279 [a]	2021 [a]	-881
	[-797,598]	[168, 390]	[1358, 2685]	[-2218, 457]
t+4	-465	670 [a]	2748 [a]	-1656 [b]
	[-1245, 316]	[543, 797]	[1969, 3525]	[-3115, -197]
t+5	-856 [b]	986 [a]	2747 [a]	-2230 [c]
	[-1687, -25]	[853, 1120]	[1969, 3525]	[-3781, -679]
	Panel B: Difference from non-CC health shock for those with CC health shock			
t-3	1078	225	1014	4043 [b]
	[-735,2891]	[-156, 606]	[-751, 2779]	[341, 7744]
t-2	-157	33	-262	1432
	[-1547, 1233]	[-263, 329]	[-1517, 994]	[-1366,4234]
t-1	Referent	Referent	Referent	Referent
t	95	135	206	-368
	[-1286, 1476]	[-196, 465]	[-1224, 1636]	[-3055, 2317]
t+1	321	39	587	-15
	[-1614, 2255]	[-335, 413]	[-1427, 2601]	[-3523, 3493]
t+2	-54	-41	-216	-527
	[-2299, 2191]	[-419, 337]	[-2511, 2081]	[-4590, 3537]
t+3	-244	77	535	98
	[-2728, 2239]	[-327, 481]	[-1994, 3064]	[-4534, 4731]
t+4	772	-101	1144	195
	[-1794, 3337]	[-524, 322]	[-1468, 3756]	[-4796, 5186]
t+5	1208	-69	1954	627
	[-1692, 4107]	[-513, 374]	[-988, 4896]	[-4948, 6201]
Family				
_cons	46036 [a]	3239 [a]	50744 [a]	87558 [a]
	[45449,46623]	[3082, 3396]	[50176, 51312]	[86354,88762]
	Panel A: Non-CC health shock, difference from T-1			
t-3	-3341 [a]	-224 [a]	-3867 [a]	-4578 [a]
	[-3872,-2810]	[-355, -92]	[-4365, -3369]	[-5617, -3539]
t-2	-586 [a]	-105 [c]	-853 [a]	-811 [b]
	[-1003,-169]	[-223, 13]	[-1242, -465]	[-1604, -18]
t-1	Referent	Referent	Referent	Referent

t	19	-39	196	243
	[-354,393]	[-153, 75]	[-183, 576]	[-536, 1023]
t+1	-490 [c]	-141 [b]	-4	163
	[-1035,55]	[-275, -8]	[-547, 540]	[-896, 1222]
t+2	24	-143 [c]	800 [b]	633
	[-594,643]	[-288, 2]	[179, 1421]	[-577, 1842]
t+3	138	99	1311 [a]	561
	[-544,821]	[-55, 253]	[651, 1971]	[-789, 1911]
t+4	-430	348 [a]	1282 [a]	179
	[-1181,321]	[188, 509]	[550, 2015]	[-1300, 1658]
t+5	-790 [c]	572 [a]	1560 [a]	413
	[-1605,26]	[404, 740]	[776, 2342]	[-1219, 2046]
	Panel B: Difference from non-CC health shock for those with CC health shock			
t-3	363	192	808	387
	[-1266,1992]	[-317, 702]	[-756, 2371]	[-2593, 3367]
t-2	-9	-237	-379	767
	[-1223,1206]	[-631, 157]	[-1547, 789]	[-1721, 3255]
t-1	Referent	Referent	Referent	Referent
t	677	-53	924	-898
	[-672, 2026]	[-475, 368]	[-431, 2279]	[-3569, 1773]
t+1	528	-17	88	1207
	[-1171, 2226]	[-464, 431]	[-1651, 1827]	[-2173, 4587]
t+2	95	42	-135	-291
	[-1806, 1995]	[-448, 531]	[-2006, 1737]	[-4225, 3644]
t+3	229	-146	-144	-955
	[-1924, 2381]	[-671, 379]	[-1973, 2261]	[-5178, 3267]
t+4	-154	-52	442	190
	[-2864, 2555]	[-591, 488]	[-2003, 2887]	[-4907, 5287]
t+5	497	96	1378	869
	[-2258, 3252]	[-560, 752]	[-1121, 3877]	[-4375, 6113]
Refugee				
_cons	46056 [a]	3095 [a]	50520 [a]	86002 [a]
	[45073,47040]	[2882, 3307]	[49520, 51521]	[84017, 87987]
	Panel A: Non-CC health shock, difference from T-1			
t-3	-4128 [a]	-140	-4668 [a]	-4403 [a]
	[-4842,-3414]	[-322, 43]	[-5368, -3969]	[-5895, -2911]
t-2	-1396	-121	-1861 [a]	-774
	[-1923,-869]	[-279, 37]	[-2359, -1363]	[-2008, 460]
t-1	Referent	Referent	Referent	Referent
t	-80	131	497 [c]	449
	[-652, 492]	[-35, 297]	[-82, 1077]	[-635, 1534]
t+1	-851 [b]	25	-359	-814
	[-1620, -81]	[-158, 207]	[-1124, 405]	[-2214, 587]
t+2	-945 [b]	445 [a]	188	-1135
	[-1841,-48]	[227, 773]	[-660, 1035]	[-2835, 566]
t+3	-839	479 [a]	712	-873
	[-1894,217]	[267, 692]	[-298, 1722]	[-2744, 997]
t+4	-903	836 [a]	1099 [b]	-116
	[-2028,223]	[605, 1067]	[27, 2171]	[-2138, 1907]
t+5	-1096 [c]	1262 [a]	1704 [a]	-771
	[-2303,111]	[1004, 1521]	[537, 2871]	[-2949,1407]
	Panel B: Difference from non-CC health shock for those with CC health shock			
t-3	981	-358	332	-726
	[-2028, 3990]	[-1041, 326]	[-2661, 3324]	[-7097, 5644]

t-2	-119	-58	-607	-3091
	[-2145, 1907]	[-620, 503]	[-2697, 1482]	[-7515, 1332]
t-1	Referent	Referent	Referent	Referent
t	486	162	706	-3091
	[-1714, 2686]	[-419, 743]	[-1320, 2733]	[-7515, 1332]
t+1	579	264	595	-2356
	[-2374, 3532]	[-428, 956]	[-2249, 3439]	[-7991, 3279]
t+2	2721 [c]	-539 [c]	3095 [c]	1780
	[-482, 5924]	[-1164, 87]	[-85, 6275]	[-4207,7767]
t+3	3588 [b]	-739 [b]	2626	4913
	[360, 6815]	[-1369, -108]	[-744, 5995]	[-1489, 11315]
t+4	3529 [b]	-159	3369 [c]	3685
	[124, 6931]	[-996, 678]	[-85, 6822]	[-3172, 10542]
t+5	3730 [c]	-542	2159	6499 [c]
	[-110, 7571]	[-1412, 329]	[-1611, 5929]	[-1107, 14105]

Table 6. Fixed-effects regressions of income variables by cardiovascular or cerebrovascular (CC) health shock, stratified by duration in Canada (recent immigrant n= 4750, long-term immigrant n=21035)

	Employment income	Government income	Total income	Household income
Recent				
_cons	39635 [a]	2966 [a]	45513 [a]	75352 [a]
	[38706, 40564]	[2713, 3219]	[42569-49456]	[73457, 77246]
	Panel A: Non-CC health shock, difference from T-1			
t-3	-6918 [a]	-471 [a]	-7550 [a]	-10248 [a]
	[-7635, -6200]	[-644, -299]	[-8220,-6879]	[-11598, -8898]
t-2	-2415 [a]	-261 [a]	-2736 [a]	-2847 [a]
	[-2952, -1878]	[-412, -109]	[-3232, -2240]	[-3878, -1815]
t-1	Referent	Referent	Referent	Referent
t	1060 [a]	-25	1373 [a]	2087 [a]
	[533, 1586]	[-182, 133]	[873,1872]	[1124, 3051]
t+1	2304 [a]	-297 [a]	2359 [a]	5460 [a]
	[1590, 3018]	[-468, -125]	[1696, 3021]	[4214, 6706]
t+2	3357 [a]	-277 [a]	3654 [a]	7650 [a]
	[2514, 4200]	[-459, -95]	[2847,4461]	[6188, 9113]
t+3	4295 [a]	-166 [c]	4794 [a]	9556 [a]
	[3339, 5251]	[-362, 30]	[3871,5717]	[7874, 11237]
t+4	5343 [a]	67	6374 [a]	10494 [a]
	[4328, 6358]	[-136, 271]	[5382,7366]	[8718, 12270]
t+5	5409 [a]	322 [a]	6894 [a]	11124 [a]
	[4343, 6475]	[104, 541]	[4548,7941]	[9241, 13007]
	Panel B: Difference from non-CC health shock for those with CC health shock			
t-3	35	104	268	-1137
	[-2849, 2918]	[-644, 852]	[-2457,2993]	[-6998, 4723]
t-2	-1074	-204	-1459	106
	[-3101, 954]	[-872, 464]	[-3226,308]	[-4310, 4522]
t-1	Referent	Referent	Referent	Referent
t	1212	-25	1220	-817
	[-885, 3310]	[-182, 133]	[-3912,1867]	[-5034, 3399]
t+1	-985	290	-1022	-4354
	[-4002, 2032]	[-485, 1064]	[-3912, 1867]	[-9959, 1242]
t+2	-1988	-72	-2755	-8275 [b]
	[-5475, 1499]	[-837, 693]	[-6233, 723]	[-14759, -1790]
t+3	-1520	-74	-1667	-8582 [b]
	[-5319, 2279]	[-837, 689]	[-555, 2216]	[-15434, -1729]
t+4	-809	527	448	-7588 [c]
	[-4917, 3300]	[-400, 1455]	[-3732, 4627]	[-15452, 276]
t+5	-619	692	701	-5608
	[-4540, 3302]	[-269, 1653]	[-3254, 4656]	[-13704, 2488]
Long-term				
_cons	51296 [a]	2602 [a]	56013 [a]	99866 [a]
	[50841, 51752]	[2508, 2696]	[55546,56480]	[98957, 100775]
	Panel A: Non-CC health shock, difference from T-1			
t-3	-3645 [a]	-119 [a]	-4106 [a]	-4988 [a]
	[-4007, -3282]	[-197, -40]	[-4455,-3756]	[-5716, -4259]
t-2	-822 [a]	-90 [b]	-1194 [a]	-716 [b]
	[-1095, -548]	[-161, -20]	[-1456,-932]	[-1287, -146]
t-1	Referent	Referent	Referent	Referent

t	-216	13	148	-167
	[-486, 53]	[-56, 81]	[-122,919]	[-727, 393]
t+1	-937 [a]	-15	-173	-1289 [a]
	[-1319, -556]	[-97, 67]	[-548,202]	[-2032, -545]
t+2	-918 [a]	151 [a]	410	-1720 [a]
	[-1365, -471]	[62, 240]	[-24,844]	[-2584, -856]
t+3	-1066 [a]	332 [a]	851 [a]	-2341 [a]
	[-1572, -561]	[239, 425]	[369,1333]	[-3312, -1370]
t+4	-1722 [a]	687 [a]	875	-3017 [a]
	[-2282, -1161]	[585, 788]	[348,1402]	[-4079, -1956]
t+5	-2133 [a]	996 [a]	1203	-3539 [a]
	[-2736, -1531]	[888, 1104]	[635,1772]	[-4684, -2393]
Panel B: Difference from non-CC health shock for those with CC health shock				
t-3	961	110	921	2401 [c]
	[-314, 2235]	[-192, 412]	[-327,2170]	[-161, 4963]
t-2	32	-47	-209	1087
	[-922, 986]	[-278, 183]	[-1114,696]	[-805, 2979]
t-1	Referent	Referent	Referent	Referent
t	268	59	468	-1028
	[-722, 1258]	[-193, 311]	[-529,1465]	[-2972, 916]
t+1	760	26	747	808
	[-572, 2092]	[-257, 309]	[-628, 2122]	[-1689, 3305]
t+2	1047	-109	1063	1576
	[-465, 2558]	[-397, 179]	[-460, 2598]	[-1266, 4419]
t+3	1126	-163	1343	2435
	[-531, 2783]	[-473, 146]	[-3335, 3021]	[-747, 5618]
t+4	1451	-206	1616	2597
	[-357, 3259]	[-535, 124]	[-155, 3386]	[-913, 6107]
t+5	1961 [c]	-235	2135 [a]	3409 [c]
	[-59, 3981]	[-605, 134]	[155, 4116]	[-454, 7261]

Table 7. Fixed-effects regressions of income variables by cardiovascular or cerebrovascular (CC) health shock, stratified by country of origin (USA n=460, Latin America and West Indies Islands n=3135, Europe and Australasia n=6185, Africa n=1820, East Asia n= 8340, Middle East n=1875, Southeast Asia n=3970)

	Employment income	Government income	Total income	Household income
USA				
_cons	64140 [b]	2017 [a]	70976 [a]	124480 [a]
	[61017, 67262]	[1607,2426]	[66722, 75321]	[118972,129987]
	Panel A: Non-CC health shock, difference from T-1			
t-3	-3999	-602 [a]	-4970 [a]	-4286
	[-7044, -953]	[-1195,-9]	[-7789, -2151]	[-10939, 2367]
t-2	72	-246	-445	1724
	[-2229, 2374]	[-808, 316]	[-2699, 1809]	[-2420, 5869]
t-1	Referent	Referent	Referent	Referent
t	222	-85	840	-2311
	[-1288, 1731]	[-512, 341]	[-834, 2514]	[-6013, 1391]
t+1	466	-442 [c]	737	-2300
	[-2149, 3081]	[-904, 21]	[-1974, 3448]	[-6013, 1391]
t+2	-1074	-321	1533	-9159 [a]
	[-4332, 2184]	[-885, 243]	[-2077, 5142]	[-15891, -2428]
t+3	-1371	198	1059	-10630 [a]
	[-4931, 2189]	[-316, 713]	[-2616, 4734]	[-18290, -2969]
t+4	-3340	744 [b]	773	-15914 [a]
	[-7479, 799]	[137, 1352]	[-3504, 5049]	[-24592, -7237]
t+5	-3372	914 [a]	1634	-14665 [a]
	[-7916, 1171]	[248, 1580]	[-2972, 6241]	[-23898, -5340]
	Panel B: Difference from non-CC health shock for those with CC health shock			
t-3	1258	435	204	3816
	[-4862, 7379]	[-906, 1777]	[-6896, 7304]	[-7645, 15277]
t-2	-2557	526	-4509	-1921
	[-7043, 1929]	[-392, 1445]	[-10842, 1824]	[-10550, 6708]
t-1	Referent	Referent	Referent	Referent
t	-4034	82	-3119	-700
	[-9465, 1397]	[-804, 968]	[-13269, 7030]	[-12218, 10818]
t+1	-6972 [b]	1583 [b]	-7435	-968
	[-13850, -101]	[215, 2590]	[-16121, 1251]	[-11606, 9669]
t+2	-3053	1058	-6378	8377
	[-10734, 4628]	[-225, 2296]	[-16512, 3756]	[-7485, 242340]
t+3	-11503 [c]	872	-7588	3666
	[-24993, 1988]	[-551, 2296]	[-23169, 7992]	[-17313, 24645]
t+4	-11214	-399	-13570 [c]	-5751
	[-25479, 3050]	[-1718, 921]	[-28460, 1321]	[-33641, 22139]
t+5	-18448 [b]	456	-13114	-6238
	[-34671, -2225]	[-1366, 2278]	[-29404, 3177]	[-35230, 22754]
South America and Caribbean Islands				
_cons	45881 [a]	3798 [a]	50379 [a]	82015 [a]
	[44833, 46928]	[3526, 4069]	[49381, 51378]	[80029, 84001]
	Panel A: Non-CC health shock, difference from T-1			
t-3	-4026 [a]	-363 [a]	-4679 [a]	-5829 [a]
	[-4893, -3160]	[-602, -124]	[-5483, -3874]	[-7567, -4091]
t-2	-630 [b]	-301 [a]	-1236 [a]	-106
	[-1248, -12]	[-515, -87]	[-1780, -692]	[-1399, 1188]

t-1	Referent	Referent	Referent	Referent
t	136	-186 [c]	39	197
	[-510, 783]	[-389, 17]	[-523, 601]	[-1065, 1459]
t+1	30	-242 [b]	13	820
	[-854, 914]	[-485, 1]	[-806, 832]	[-800, 2441]
t+2	281	-360 [a]	401	288
	[-741, 1303]	[-605, -114]	[-566, 1368]	[-1565, 2142]
t+3	488	46	1142 [b]	581
	[-624, 1600]	[-239, 332]	[105, 2178]	[-1504, 2666]
t+4	293	230	1361 [b]	123
	[-886, 1471]	[-51, 512]	[248, 2473]	[-2181, 2426]
t+5	231	542 [a]	1723 [a]	-181
	[-983, 1445]	[229, 856]	[586, 2859]	[-2595, 2233]
Panel B: Difference from non-CC health shock for those with CC health shock				
t-3	1516	513	2109	5918 [b]
	[-1423, 4454]	[-434, 1460]	[-602, 4820]	[618, 11219]
t-2	-178	135	472	83
	[-2128,1772]	[-560, 830]	[-1216, 2159]	[-3381, 3548]
t-1	Referent	Referent	Referent	Referent
t	1411	-213	1872	-474
	[-1190, 4011]	[-977, 552]	[-416, 4160]	[-5374, 4426]
t+1	-560	145	-331	2448
	[-3993, 2874]	[-753, 1044]	[-3717, 3055]	[-8997, 4101]
t+2	109	186	1061	-345
	[-3812, 4031]	[-708, 1080]	[-2772, 4894]	[-7034, 6345]
t+3	1389	37	1574	1736
	[-2593, 5361]	[-992, 1065]	[-2146, 5294]	[-5016, 8488]
t+4	1711	-142	1779	3213
	[-2481, 5903]	[-1026, 741]	[-2168, 5726]	[-4335, 10761]
t+5	5522 [b]	12	6192 [a]	10882 [a]
	[1129, 9916]	[-1037, 1062]	[1887, 10497]	[2729, 19036]
Europe and Australasia				
_cons	56065 [a]	2254 [a]	60975 [a]	110032 [a]
	[55066, 57065]	[2081, 2426]	[59906, 62043]	[108148, 111916]
Panel A: Non-CC health shock, difference from T-1				
t-3	-3865 [a]	-31	-4345 [a]	-5095 [a]
	[-4574, -3156]	[-175, 113]	[-5038, -3651]	[-6482, -3709]
t-2	-993 [a]	-43	-1384 [a]	-540
	[-1523, -463]	[-167, 80]	[-1892, -877]	[-1613, 534]
t-1	Referent	Referent	Referent	Referent
t	-155	79	302	-603
	[-721, 411]	[-40, 197]	[-255, 859]	[-1710, 505]
t+1	-953 [b]	102	218	-2610 [a]
	[-1750, -156]	[-52, 256]	[-552, 989]	[-4095, -1124]
t+2	-855 [c]	377 [a]	880 [b]	-3205 [a]
	[-1761, 52]	[211, 542]	[23, 1736]	[-4896, -1513]
t+3	-1210 [b]	523 [a]	1324 [a]	-3875 [a]
	[-2255, -164]	[361, 684]	[338, 2309]	[-5800, -1950]
t+4	-2407 [a]	967 [a]	1024 [c]	-6288 [a]
	[-3588, -1226]	[778, 1155]	[-67, 2114]	[-8383, -4194]
t+5	-3040 [a]	1128 [a]	985 [c]	-8292 [a]
	[-4286, -1795]	[941, 1314]	[-156, 2126]	[-10526, -6057]
Panel B: Difference from non-CC health shock for those with CC health shock				

t-3	-871	96	-1421	281
	[-3703, 1961]	[-463, 655]	[-4217, 1375]	[-5268, 5830]
t-2	-1040	-75	-1944 [c]	547
	[-3028, 949]	[-456, 306]	[-3961, 72]	[-3718, 4812]
t-1	Referent	Referent	Referent	Referent
t	-1680	237	-1173	-4012
	[-3794, 434]	[-204, 678]	[-3364, 1018]	[-7894, -131]
t+1	-2042	311	-1229	-2839
	[-5123, 1038]	[-211, 833]	[-4560, 2103]	[-8261, 2583]
t+2	-1899	-307	-2328	-4447
	[-5277, 1480]	[-817, 204]	[-5835, 1179]	[-10363, 1468]
t+3	-1672	-266	-2386	-2101
	[-5282, 1938]	[-830, 299]	[-6171, 1398]	[-8407, 4206]
t+4	-220	-392	11	857
	[-4078, 3638]	[-1016, 231]	[-3833, 3854]	[-6211, 7924]
t+5	-677	101	-1121	1709
	[-5077, 3723]	[-701, 903]	[-5513, 3272]	[-6113, 9352]
Africa				
_cons	55789 [a]	3548 [a]	60941 [a]	103719 [a]
	[54182, 57396]	[3099, 3998]	[59531, 62351]	[100148, 107290]
Panel A: Non-CC health shock, difference from T-1				
t-3	-6099 [a]	-341 [b]	-6224 [a]	-8441 [a]
	[-7427, -4722]	[-676, -7]	[-7446, -5001]	[-11129, -5752]
t-2	-2016 [a]	-142	-1966	-2855 [b]
	[-3088, -943]	[-434, 151]	[-3021, -911]	[-5016, -694]
t-1	Referent	Referent	Referent	Referent
t	-323	-31	557	-638
	[-1294, 649]	[-318, 257]	[-371, 1486]	[-2618, 1343]
t+1	-1962 [a]	20	-714	-1900
	[-3397, -526]	[-319, 359]	[-2087, 658]	[-4560, 760]
t+2	-1410 [c]	182	580	-1893
	[-3050, 229]	[-173, 538]	[-988, 2148]	[-4991, 1205]
t+3	-2249 [b]	541 [a]	235	-4947 [a]
	[-4112, -386]	[147, 935]	[-1541, 2011]	[-8382, -1512]
t+4	-1840 [c]	603 [a]	1272	-2903
	[-3847, 166]	[211, 995]	[-580, 3123]	[-6552, 747]
t+5	-3529 [a]	1279 [a]	382	-4423 [b]
	[-5798, -1260]	[815, 1743]	[-1732, 2497]	[-8488, -358]
Panel B: Difference from non-CC health shock for those with CC health shock				
t-3	1197	-361	102	1324
	[-3935, 6329]	[-1717, 994]	[-4698, 4902]	[-8263, 10912]
t-2	-1166	-705	-1223	6180
	[-5347, 3014]	[-1867, 457]	[-4320, 1874]	[-1671, 14031]
t-1	Referent	Referent	Referent	Referent
t	2353	-311	694	2218
	[-1771, 6477]	[-1448, 825]	[-3060, 4448]	[-5829, 10265]
t+1	5306 [b]	-790	3239	5136
	[436, 10176]	[-2065, 485]	[-1192, 7671]	[-4179, 14452]
t+2	1526	-426	463	2130
	[-3975, 7026]	[-1649, 798]	[-4310, 5237]	[-8448, 12709]
t+3	4426	-1096 [c]	3283	3257
	[-2166, 11018]	[-2259, 67]	[-3151, 9716]	[-10478, 16992]
t+4	5479 [c]	-1438 [b]	2418	1278

	[-470, 11428]	[-2685, -190]	[-3188, 8024]	[-11892, 14447]
t+5	7008 [b]	-2308 [a]	3182	791
	[541, 13475]	[-3671, -945]	[-2760, 913]	[-14149, 15731]
East Asia				
_cons	48280 [a]	2243 [a]	52748 [a]	95616 [a]
	[47626, 48395]	[2097, 2389]	[52105, 53391]	[94219, 97013]
	Panel A: Non-CC health shock, difference from T-1			
t-3	-3298 [a]	-136 [b]	-3636 [a]	-4754 [a]
	[-3818, -2778]	[-258, -15]	[-4138, -3134]	[-5831, -3677]
t-2	-942 [a]	-96 [c]	-1389 [a]	-1207 [a]
	[-1334, -551]	[-204, 11]	[-1750, -1027]	[-2070, -343]
t-1	Referent	Referent	Referent	Referent
t	114	-62	307	753 [c]
	[-279, 506]	[-169, 45]	[-100, 714]	[-56, 1563]
t+1	-30	-96	387	507
	[-572, 512]	[-217, 25]	[-143, 917]	[-589, 1602]
t+2	256	32	1123 [a]	1044
	[-401, 912]	[-102, 165]	[483, 1763]	[-224, 2312]
t+3	290	93	1498 [a]	1072
	[-447, 1028]	[-42, 228]	[776, 2219]	[-358, 2503]
t+4	264	413 [a]	1938 [a]	1569 [b]
	[-542, 1071]	[263, 562]	[1156, 2719]	[20,3118]
t+5	-36	793 [a]	2530 [a]	1863 [b]
	[-896, 824]	[630, 956]	[1705, 3354]	[178,3547]
	Panel B: Difference from non-CC health shock for those with CC health shock			
t-3	418	264	376	-202
	[-1499, 2336]	[-221, 749]	[-1423, 2175]	[-4409,4006]
t-2	123	134	-9	317
	[-1316, 1562]	[-250, 517]	[-1317, 1299]	[-2474,3109]
t-1	Referent	Referent	Referent	Referent
t	50	63	145	-1748
	[-1391, 1491]	[-342, 468]	[-1278, 1568]	[-4862,1365]
t+1	771	-33	195	347
	[-1097, 2684]	[-473 407]	[-1599, 1989]	[-3447, 4140]
t+2	878	-73	636	1086
	[-1306, 3061]	[-527, 381]	[-1527, 2799]	[-3401, 5574]
t+3	72	53	905	-1448
	[-2324, 2468]	[-412, 517]	[-1407, 3217]	[-6608, 3712]
t+4	-694	484 [c]	444	-3097
	[-3480, 2092]	[-79, 1047]	[-2150, 3039]	[-8475, 2282]
t+5	-616	194	742	-6364 [b]
	[-3647, 2414]	[-356, 744]	[-2138, 3622]	[-12220, -508]
Middle East				
_cons	42564 [a]	3103 [a]	46813 [a]	81942 [a]
	[41062, 44066]	[2802, 3404]	[45214, 48412]	[78828, 85057]
	Panel A: Non-CC health shock, difference from T-1			
t-3	-6078 [a]	-287 [b]	-6959 [a]	-7294 [a]
	[-7413, -4743]	[-548, -25]	[-8235, -5682]	[-9720, -4868]
t-2	-1829 [a]	-146	-1906 [a]	-1156
	[-2825, -833]	[-378, 87]	[-2863, -948]	[-3012, 700]
t-1	Referent	Referent	Referent	Referent
t	291	150	1180 [b]	743
	[-629, 1211]	[-86, 386]	[266, 2094]	[-1219, 2705]

t+1	56	99	1047	1071
	[-1265, 1377]	[-204, 401]	[-302, 2396]	[-1448,3591]
t+2	-638	57	594	721
	[-2298, 1023]	[-238, 351]	[-1040, 2228]	[-2212, 3654]
t+3	56	200	1897 [b]	2902 [b]
	[-1761, 1873]	[-115, 515]	[118, 3676]	[-406, 6211]
t+4	-867	654 [a]	1723 [c]	2254
	[-2915, 1180]	[287, 1020]	[-300, 3745]	[-1266, 5774]
t+5	341	703 [a]	3406 [a]	4172 [b]
	[-1731, 2414]	[340, 1066]	[1340, 5472]	[540, 7804]
Panel B: Difference from non-CC health shock for those with CC health shock				
t-3	1649	245	3414	6624
	[-2273, 5570]	[-705, 1194]	[-672, 7500]	[-3016, 16264]
t-2	-1179	-383	-1004	369
	[-3623, 1265]	[-1155, 389]	[-3245, 1238]	[-6688, 7426]
t-1	Referent	Referent	Referent	Referent
t	1898	580	2542 [c]	167
	[-974, 4770]	[-174, 1333]	[-325, 5318]	[-5862, 6197]
t+1	2744	62	3627	-1278
	[-1628, 7115]	[-867, 991]	[-862, 8116]	[-9408, 6852]
t+2	2738	472	4640	-3750
	[-3038, 8515]	[-652, 1596]	[-1521, 10800]	[-14002, 6502]
t+3	374	438	2600	-813
	[-6223, 6971]	[-741, 1617]	[-4529, 9729]	[-12369, 10743]
t+4	-1273	490	1435	-4979
	[-7908, 5362]	[-884, 1864]	[-5830, 8700]	[-18526, 8569]
t+5	-356	241	1315	282
	[-7130, 6417]	[-911, 1393]	[-6262, 8892]	[-13926, 14489]
Southeast Asia				
_cons	43299 [a]	2724	47380 [a]	86255 [a]
	[42384, 44214]	[2488, 2960]	[46442, 48319]	[84471,88039]
Panel A: Non-CC health shock, difference from T-1				
t-3	-4491 [a]	-123	-5073 [a]	-7591 [a]
	[-5321, -3661]	[-287, 40]	[-5870, -4276]	[-9104, -6077]
t-2	-1375 [a]	-66	-1605 [a]	-2668 [a]
	[-2004, -745]	[-214, 81]	[-2238, -972]	[-3888,-1448]
t-1	Referent	Referent	Referent	Referent
t	-30	151 [c]	355	761
	[-613, 553]	[-12, 315]	[-232, 941]	[-472, 1994]
t+1	-249	-150 [c]	287	1514 [c]
	[-1064, 566]	[-319, 20]	[-534, 1108]	[-107, 3135]
t+2	430	82	1601 [a]	3432 [a]
	[-516, 1376]	[-122, 286]	[658, 2543]	[1503,5361]
t+3	1094 [b]	205 [c]	2917 [a]	3657 [a]
	[14, 2173]	[-4, 414]	[1915, 3918]	[1524,5790]
t+4	1021 [c]	558 [a]	3573 [a]	4206 [a]
	[-160, 2202]	[331, 785]	[2509, 4638]	[1850,6563]
t+5	831	862 [a]	4163 [a]	4702 [a]
	[-523, 2186]	[625, 1099]	[2867, 5459]	[2099,7305]
Panel B: Difference from non-CC health shock for those with CC health shock				
t-3	2999 [b]	-401	3249 [b]	3823
	[401, 5597]	[-986, 184]	[527, 5970]	[-832,8479]
t-2	2275 [b]	-316	1854 [c]	2846
	[4, 4546]	[-878, 244]	[-337, 4045]	[-1209,6902]

t-1	Referent	Referent	Referent	Referent
t	2255 [b]	88	2463 [b]	2758
	[310, 4201]	[-558, 735]	[504, 4421]	[-899,6415]
t+1	2270 [c]	45	2546 [b]	4138 [c]
	[-196, 4736]	[-593, 683]	[16, 5076]	[-512, 8788]
t+2	2797 [b]	-247	2665 [c]	4260
	[20, 5574]	[-914, 421]	[-114, 5444]	[-1358, 9879]
t+3	4232 [a]	-402	3482 [b]	6901 [b]
	[1238, 7225]	[-1082, 278]	[323, 6640]	[1055, 12747]
t+4	6018 [a]	-299	5760 [a]	10013 [a]
	[2378, 9658]	[-1030, 432]	[1907, 9613]	[2487, 17540]
t+5	6202 [a]	-231	5888 [a]	13250 [a]
	[2363, 10040]	[-1037, 574]	[2064, 9712]	[5276, 21224]

Figure 3: Income and earnings over time
Average employment income (top left), governmental income (top right), total income (bottom left), and household income (bottom right) in full sample in years t-3 to t+5. Health shock occurs in year t. CC=cardiovascular or cerebrovascular

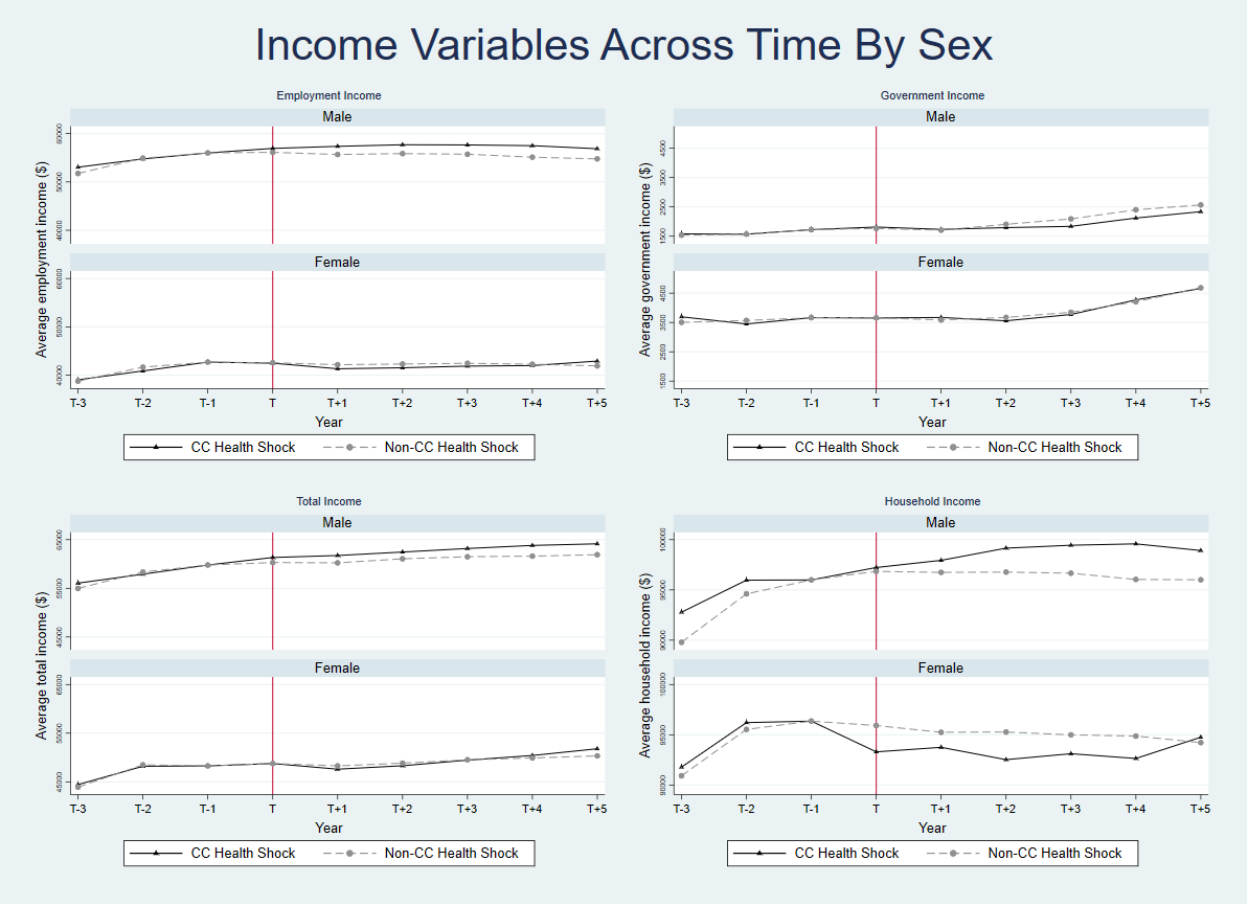


Figure 4: Income and earnings over time by sex
Average employment income (top left), governmental income (top right), total income (bottom left), and household income (bottom right) in males and females in years t-3 to t+5. Health shock occurs in year t. CC=cardiovascular or cerebrovascular

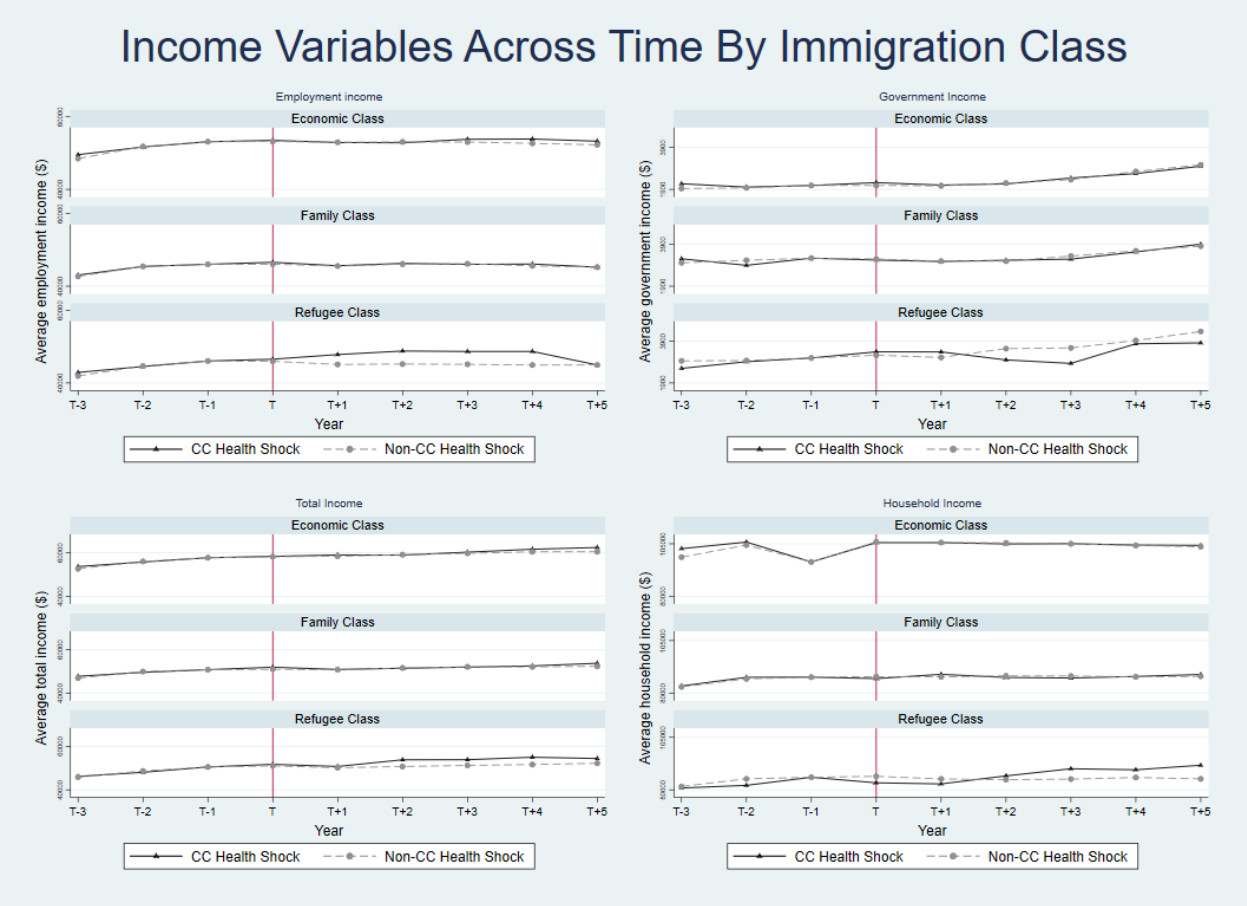


Figure 5: Income and earnings over time by immigration class
Average employment income (top left), governmental income (top right), total income (bottom left), and household income (bottom right) in economic, family, and refugee-class migrants in years t-3 to t+5. Health shock occurs in year t. CC=cardiovascular or cerebrovascular

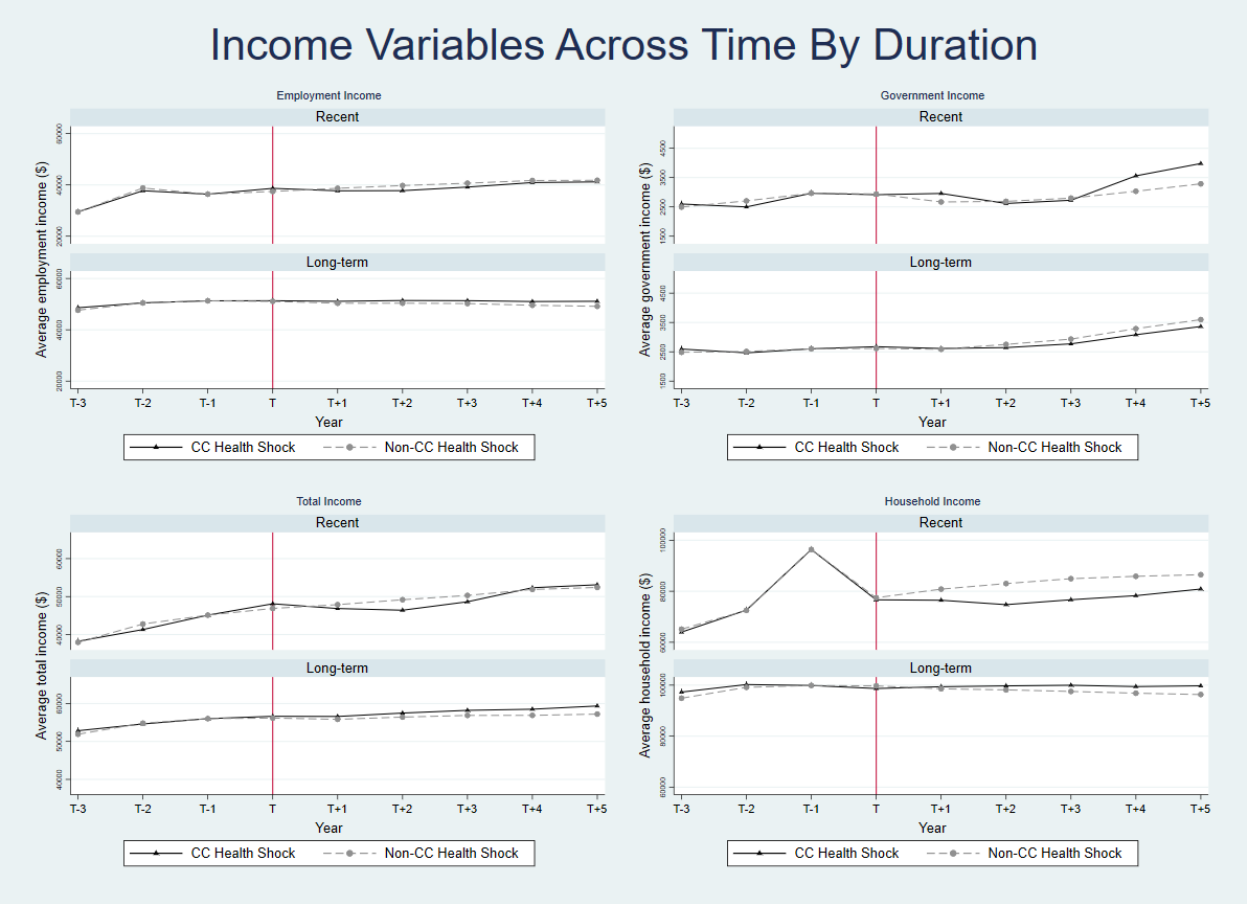


Figure 6: Income and earnings over time by duration in Canada
Average employment income (top left), governmental income (top right), total income (bottom left), and household income (bottom right) in recent and long-term migrants in years t-3 to t+5. Health shock occurs in year t. CC=cardiovascular or cerebrovascular

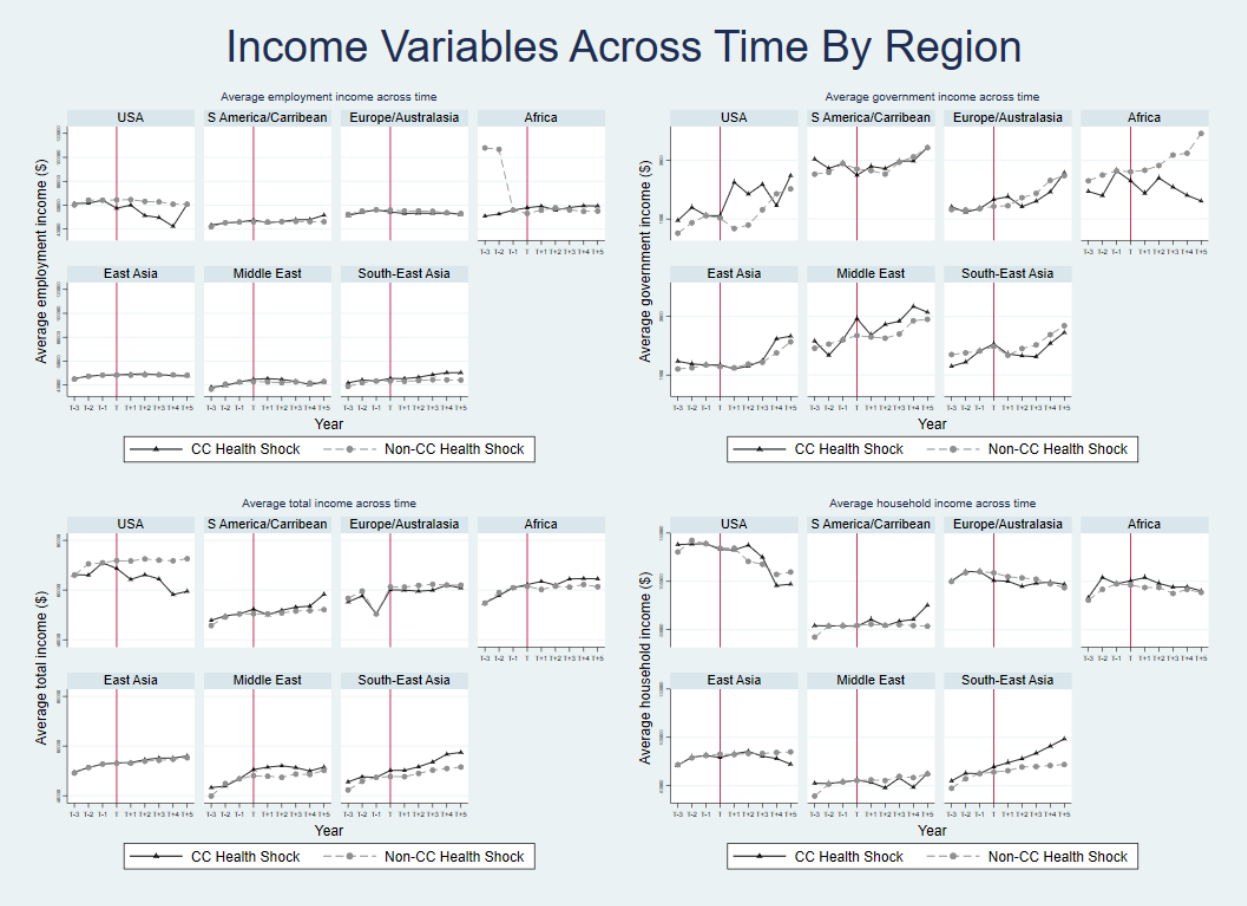


Figure 7: Income and earnings over time by source region
Average employment income (top left), governmental income (top right), total income (bottom left), and household income (bottom right) in immigrants from USA, Europe and Australasia, Middle East, Southeast Asia, Latin America and West Indies Islands, Africa, and East Asia in years t-3 to t+5. Health shock occurs in year t. CC=cardiovascular or cerebrovascular

Appendix B1: Logistic Regression Results, Propensity Score Matching, Outcome (Employment Income)

Variables	Coefficient	[95% Confidence Interval]	
Age	0.01	-0.04	0.07
Sex			
Female	-0.97	-2.49	0.48
Marital status			
Widowed/divorced/separated	0.71	-0.20	1.63
Single	0.15	-0.39	0.70
Duration			
Long-term immigrant	-0.54	-1.11	0.03
Highest education			
Trades/diploma	-0.11	-0.31	0.08
Bachelors	-0.24	-0.58	0.11
Post-Grad with no degree	-0.44	-0.70	-0.19
Post-grad degree	-0.59	-1.00	-0.19
immigration category			
Family members	0.13	-0.37	0.64
Refugees and protected persons	0.35	-0.19	0.89
Region			
Latin America and West Indies Islands	1.25	-0.35	2.86
Europe and Australasia	1.19	-0.36	2.74
Africa	1.32	-0.36	3.00
Middle East	0.97	-0.70	2.64
East Asia	0.79	-0.75	2.34
Southeast Asia	1.04	-0.54	2.62
Province			
ON	0.67	-1.34	2.68
Prairie provinces	0.37	-1.70	2.44
BC	-0.22	-2.26	1.82
Children under the age of 5	-0.45	-1.32	0.43
Sex#immcategory			
Female#family members	0.13	-0.12	0.38
Female#refugees and protected persons	0.19	-0.11	0.48
Female#age	0.01	0.00	0.02
Sex#country_source			
Female#Latin America and West Indies Islands	-0.01	-0.83	0.81
Female#Europe and Australasia	-0.08	-0.88	0.72
Female#Africa	-0.36	-1.23	0.50

Female#Middle East	-0.20	-1.08	0.67
Female#East Asia	-0.43	-1.22	0.36
Female#Southeast Asia	-0.06	-0.87	0.75
Sex#marital_status_in_year0			
Female#widowed/divorced/separated	-0.05	-0.42	0.33
Female#single	0.23	-0.09	0.55
Sex#duration_cat			
Female#long-term immigrant	0.43	0.10	0.75
Sex#highest_education			
Female#Trades/diploma	0.19	-0.09	0.46
Female#Bachelors	0.07	-0.42	0.57
Female#Post-Grad with no degree	0.34	-0.03	0.71
Female#Post-grad degree	0.48	-0.12	1.09
Sex#prov_in_year0			
Female#ON	0.15	-0.92	1.23
Female#Prairie provinces	0.05	-1.06	1.15
Female#BC	0.09	-1.00	1.18
Sex#children			
Female#1	0.09	-0.24	0.41
Duration_cat#c.age_in_year0			
Long-term immigrant#age	0.01	0.00	0.03
Family members #age	-0.01	-0.02	0.01
Refugees and protected persons#age	-0.01	-0.02	0.00
Country_source#age			
Latin America and West Indies Islands#age	-0.03	-0.06	0.00
Europe and Australasia#age	-0.03	-0.06	0.00
Africa#age	-0.03	-0.06	0.01
Middle East#age	-0.02	-0.06	0.01
East Asia#age	-0.02	-0.05	0.02
Southeast Asia#age	-0.02	-0.05	0.01
Prov_in_year0#age			
ON#age	0.01	-0.04	0.05
Prairie provinces #age	0.01	-0.04	0.05
BC #age	0.00	-0.04	0.05
Marital status#age			
Widowed/divorced/separated #age	-0.01	-0.03	0.01
Single#age	0.00	-0.02	0.01
Children#age			
Employment Income	0.00	-0.12	0.13
Government Income	0.05	-0.03	0.12

Total Income	0.01	-0.14	0.16
Household Income	-0.01	-0.05	0.03
_cons	-4.34	-7.06	-1.61

Appendix B2: Counts of type of hospitalization events reported in comparison group

Hospitalization Event Type	Count	%
Infection	520	2.1%
Neoplasm	3060	12.6%
Blood	245	1.0%
Endocrine	535	2.2%
Mental	570	2.4%
Nervous	325	1.3%
Eye	1205	5.0%
Ear	110	0.5%
Circulatory	1610	6.7%
Digestive	4205	17.4%
Skin	155	0.6%
Musculoskeletal	1530	6.3%
Genitourinary	2540	10.5%
Congenital	85	0.4%
Abnormal	2025	8.4%
Injury	1975	8.2%
Health Services Factors	2340	9.7%
Respiratory	1155	4.8%
Unknown	5	0.0%
Total	24195	100.0%

Chapter Four: Preferences for home care and long-term care among older adults in Ontario: a discrete choice experiment

4.0 Abstract

Background: The demand for both home care and long-term care among seniors is increasing as the population is aging. To prepare for the growing demand and improve the delivery and design of services, Ontario is in the midst of several health care reforms. To help decision makers decide how best to allocate funding and develop policies, preferences of those who will be affected can be elicited and considered.

Methods: A discrete choice experiment was conducted in Ontario, Canada among community-dwellers aged 45-75 years old (n=1057). Participants in an online survey were asked to state their preference between home care and long-term care after being presented with a hypothetical scenario asking them to imagine they were 80 years old and had mild-level dementia. Preferences and willingness-to-pay estimates were assessed with respect to seven attributes: (1) room type (2) hours of care (3) culturally adapted care (4) wait time (5) regular care providers (6) distance to family and friends and (7) monthly cost. Stratified results were also provided by immigrant status and sex and predicted probability analysis was completed. To create the questionnaire, a rapid review and qualitative interviews with stakeholders were first conducted.

Results: Results showed that participants were willing to pay $4017 per month [95% CI: $3120, $4914] more for home care than long-term care, while controlling for all other attributes. Apart from setting, other attributes that were highly valued included having culturally adapted care ($277 per month, 95% CI: 73, 480), private room ($1309 per month, 95% CI: $809, $1810), and short distance to family and friends ($575 per month, 95% CI: $223, $928). Immigrants showed a stronger preference for all these attributes compared to non-immigrants. Predicted probability analysis showed that participants preferred the setting that had the highest quality.

Conclusion: These results provided a Canadian and immigrant perspective on preferences for home care and long-term care characteristics which are missing in the international literature. The findings highlight the areas that need prioritizing and the importance of high-quality care for seniors.

4.1 Introduction

Canada is undergoing a demographic shift in its age structure with seniors making up a larger proportion of the population each year (Statistics Canada 2016). Increasing demand for health care services from an aging population is putting pressure on the health care system. On average, health care spending per person is the highest for those aged 80 and older as they are living with a greater number of chronic illnesses, and because health care costs are the most expensive near the end of life (Marchildon and Matteo 2011). In Ontario, seniors can receive medical care in hospitals, at home, in retirement homes, in long-term care homes, as well as in other assisted living arrangements. Thus, patients, family members, and service providers often need to evaluate between these alternatives when deciding what setting seniors will receive care in while decision makers have to decide how to allocate funding.

Ontario is currently undergoing a system overhaul with the establishment of localized health care teams that provide integrated health and social services for enrolled patients throughout their lifetime (Ministry of Health and Long-Term Care 2019). There is a growing interest within these teams to move care to the community in order to reduce high hospital costs, improve quality of care, and align with the demand for "aging in place" (Rogers, Ramadhani, and Harris 2020). At the same time, more funding is being allocated to build new long-term care homes. As these systems undergo change, it is critical to include current and future clients' preferences into policy-making to contribute to its success. Deciding how and where to allocate limited resources is difficult. Learning what individuals expect and value from home care and/or long-term care can help achieve more efficient decisions. In this study, I explore older adults' preferences for home care and long-term care in Ontario using a discrete-choice-experiment. Given that immigrants will make up an increasing share of the older adult population, I also explore whether preferences differ by immigration status.

4.1.1 Literature review

A comprehensive scoping literature review was published in 2019 that summarized the global literature on preferences for senior care including long-term care, home care, and retirement homes (Lehnert et al. 2019). What was clear from the review was that most respondents preferred to remain in their known physical (i.e., their home) and social (i.e., with their family and friends) environment. When the need was not emergent, informal care was preferred by patients over formal care. Discrete choice experiments (DCEs), the method proposed by this study, were few (n=5) and undertaken in Australia, Japan, Netherlands, Italy, and Ireland (Brau and Bruni 2008; Dixon et al. 2015; Finkelstein et al. 2015; Kaambwa et al. 2015; Robinson et al. 2015), but not Canada. All of these studies conducted the experiment within a general population, and did not explore preferences for care among ethnic minorities or immigrant groups.

Non-DCE measurement methods, such as Likert scales, were most commonly used in previous studies, but they are limited in that they do not encourage participants to make trade-offs between various characteristics of services (including price/cost) when deciding on a care package, resulting in unrealistic decision-making scenarios. On the other hand, discrete choice experiments are a popular method to use to elicit and value the preferences of individuals (de Bekker-Grob et al. 2019; Pignone et al. 2014). Having originated in marketing and economics, discrete choice

experiments have become a widely used stated preference method to elicit people's preferences for the purposes of policy development and implementation (Louviere, Hensher, and Swait 2000). It is a useful method when studying determinants of decisions that are not easily observable or for which a market does not exist (Lagarde and Blaauw 2009). It is now more commonly used in the health sector to elicit patients' preferences on treatment plans and program prioritization (Akiva, McFadden, and Train 2019; Johnson et al. 2013; Manski 2010; Salloum et al. 2017).

The population of older individuals is not homogenous, and care alternatives may be differentially valued by certain subgroups. Traditionally, individuals who are older and have significant cognitive or functional impairments such as incontinence require more formal supervision and use long-term care (Cloutier et al. 2019). Home care may not be a viable option for them because it is not safe for them to be at home or they are not able to obtain needed hours of care at home, either formally or informally. For others who have mild cognitive or functional impairments, home care may be appropriate as it allows them to age at home and receive services for only a few hours as needed (Cloutier et al. 2019). Between these two ends of the spectrum are individuals who have moderate level impairments and are eligible to receive care at long-term care homes but can also remain in their private homes and receive home care services if sufficient community supports are available. Little is known about the preferences of these individuals. It is expected that the majority of the population will want to age at home as long-term care is seen as "the last resort", but what they expect from home care and in what situations are they willing to enter long-term care are unknown.

There are also individuals who are using home care services because they are on the waiting list for a long-term care home. Lapointe-Shaw et al. (2021) studied homebound status among home care recipients, with homebound referring to those individuals who never leave home or leave only once a week (Lapointe-Shaw et al. 2021). They found the number of individuals waiting for a long-term care bed ranged from 14,885 in 2006 to 34,121 in 2017 in Ontario, of which the the proportion that was homebound rose from 50.4% in 2006 to 66.9% in 2017. People who were homebound were more likely to be 90 years old or older, be dependent on others for locomotion, and have higher levels of health status instability, all characteristics that were similar to long-term care patients. As the population becomes older and sicker, both demand for home care and long-term care undoubtedly will increase.

Many countries have begun to integrate and coordinate services between acute care, primary care, home care, and long-term care, increasing the interest in studying differences in various outcomes in these settings (Wysocki, Butler, & Kane, 2015). At the same time, there is interest in knowing how patients and providers will choose to navigate these services. Forder et al. (2019) found a statistically significant and clinically meaningful substitution effect (patients were utilizing one service instead of another rather than in combination) between home care and physician visits in Britain that was robust to a range of specifications (the average marginal effect of having used home care was on average a 5.5 reduction in physician visits per year) (Forder, Gousia, and Saloniki 2019). Likewise, studies have shown a substitution effect between home care and long-term care. A mixed-methods study from Northwestern Ontario concluded that "eight per cent of individuals in the urban area and 50% of individuals from the rural areas could potentially be safely diverted to the community and provided with a community care package at a cost lower than a facility-based long-term care home" (Kuluski et al. 2012).

Empirical evidence has shown that the use of home care services remains inequitable across Ontario for diverse populations. Conducting weighted frequencies and cross-tabulations using data from the self-reported Canadian Community Health Survey showed that immigrant seniors were less likely than Canadian-born seniors to receive publicly funded home care services (6.8% versus 8.8%), more likely than non-immigrants to receive home care only from "informal" caregivers such as family members (5.3% versus 3.5%), more likely to report unmet home care needs (6.3% versus 4.1%) and were less likely to receive care if they did not speak English or French (Um and Lightman 2017; Um and Lightman 2016). Qureshi et al. (2021), using multiple administrative datasets, showed that applying to cultural or ethnic-specific homes and being an immigrant were associated with significantly longer wait times to placement, after adjusting for covariates (Qureshi et al. 2021). Furthermore, research done in the Champlain Local Health Integration Unit showed that immigrant and ethnic seniors faced many challenges in accessing health care services including low income, transportation, communication, lack of knowledge, cultural beliefs, and social isolation (Runnels 2017). One of the most common barriers reported included lack of culturally and linguistically relevant services (Runnels 2017; Um and Lightman 2017). This is problematic especially considering the fact that bilingual seniors who face dementia may resort back to their mother tongue making it difficult to interact with health care staff who only speak English (Laher 2017). Gentili et al. (2017) showed in their study that elderly people residing in regions speaking non-native languages in Switzerland entered nursing homes in worse health conditions and relied more on home-based care compared to elderly people residing in native language speaking regions (Gentili, Masiero, and Mazzonna 2017).

Apart from language, a separate barrier is culture, as many foreign-born individuals practice non-traditional medicine and cultural practices that are at odds with mainstream care (Laher 2017). Lack of culturally competent care has shown to decrease compliance and increase adverse events. Ultimately, many structural factors are involved in the decision to obtain health-care including availability of family members given that informal care can act as a substitute to formal care (Bonsang 2009), gendered patterns of helping behaviour, and seniors' needs, financial circumstances, and acculturation levels (Koehn 2009). There is a need to understand the preferences for home care among diverse populations in order to shape care services in Ontario and make its access equitable.

A few studies have been published that are similar to the one I propose. Lehnert et al. (2018) studied preferences for home and long-term care service packages in a random sample of the general population aged 45-64 years old in Germany (Lehnert et al. 2018). Preferences and marginal willingness-to-pay (WTP) were assessed with respect to five attributes: care time per day, service level of the provider, quality of care, number of different caregivers per month and co-payment. They found that individuals preferred informal caregivers over professionals. Walsh et al. (2019) were interested in care options for medium-dementia patients (Walsh et al. 2019). They carried out a discrete choice experiment with a non-random sample of the general Irish population who were recruited from an online survey company panel. They were interested in four attributes: whether care provision is flexible and tailored to the individual needs of the person with dementia, whether communication with the person with dementia is expressed in a personalised manner, the number of funded hours, and co-payment.

Lastly, Kampanellou et al. (2019) examined the relative importance of different home care attributes among care providers of late-stage dementia in the United Kingdom (Kampanellou et al. 2019). The questionnaire was implemented online and in-person. The most preferred attributes were respite care, being available regularly to fit patient needs, home care regularly provided for as long as needed, and low cost packages (Kampanellou et al. 2019) . None of the relevant studies investigated heterogeneity in preferences. The studies also did not provide a hypothetical vignette to anchor participant choices. As mentioned by Torres (2009) 'vignette methodology entails the use of scenarios that depict specific situations and the problems that might arise in them in order to probe informants about the way in which they understand these scenarios and the potential solutions that are available to the people depicted in them' (Torres 2009, p94). Such methods would encourage survey participants to think of the "real-world" scenario and reduce their own biases.

4.1.2 Policy context for home care and long-term care in Ontario

Home care

Home care is known by many terms including but not limited to home-based care, visiting nursing care, and community care. Home care in Ontario is delivered by independent organizations (service provider organizations) who are contracted by the government, publicly funded institutions such as hospitals and long-term care homes, and privately by retirement homes or individuals (Home care Ontario, 2014). As a brief background on home care in Ontario, in 2007, the provincial government announced the implementation of the provincial "Aging At Home Strategy". The strategy was supported with funding of approximately $1.1 billion over four years and was implemented regionally by the newly created Local Health Integration Networks (LHINs), which provided publicly funded home care. Case managers appointed by LHIN's were responsible for assessing and determining who receives care, how much care, and what type of care. In 2015-2016, 29,357 clients received funded services from community care access centres and 39,318,763 visits/hours of care were delivered (Home Care Ontario n.d.). Of that, 74% of care provided was for personal support and homemaking, 21.5% was for nursing (shift and visits) and 4.5% of visits/hours were provided by therapy providers (Home Care Ontario n.d.) .

In 2019, Ontario began reshaping the delivery and organization of the health care system with the implementation of Ontario Health Teams (OHTs). LHINs evolved into Home and Community Care Support Services (HCCSS) which are now partners of the OHTs and are responsible for the management and delivery of home care and long-term care services. The goal of OHTs is to provide integrated care to their attributed population according to population-level needs (Ministry of Health and Long-term Care, 2019). The new model is prioritizing easier transitions from one service to another, including transitions from hospital to home and community care, and between long-term care homes and private homes, so that there is no disruption in care and patients can obtain care in the setting that is most appropriate for them. At the same time, Ontario is planning home care modernization with the Connecting People to Home and Community Care Act, 2020. Proposed changes include eliminating service maximums allowing for a coordinated approach to care, strengthening patients' right to participate in care planning, providing better access to services in French, and providing culturally appropriate care to First Nations, Inuit and Métis peoples.

Separate from HCCSS are Community-Support Service Agencies that receive partial funding from the province to provide some home care support. Some Agencies also work with HCCSS for specific services. There is currently no single gatekeeper for home care and there is no formal coordination between the various avenues providing home care, even to shared clients. Many clients also acquire private care to supplement government-provided care or because they do not qualify for public coverage. The cost of home care varies depending on service. The average cost was $20-30/hour for home support and $60/hour for nursing and physiotherapy in 2019 (Closing the Gap Healthcare Group Inc. 2020).

Long-term care

In Ontario, long-term care homes, also referred to as nursing homes, are defined as non-acute health care facilities with four or more beds that provide access to 24/7 medical or professional nursing supervision or some higher level of care to residents. Services provided in long-term care homes differ by the institution and copayment package. Basic services provided include food, nursing care, and toileting. As of February 2019, there are 626 long-term care homes in Ontario (Ontario Long Term Care Association 2019). A total of 58% are privately owned, 24% are not-for-profit/charitable, and 16% are municipal. There are 77,257 long-term beds, 669 short-term beds and 321 beds for family members. Approximately 40% of long-term care homes in Ontario are small-in-size which have 100 beds or less. In May of 2021, there were nearly 34,000 people on the waiting list for a long-term bed (Ontario Ministry of Health 2021). Waiting lists differ by region and the support available in homes. The wait time is longer in certain geographical regions as well as in institutions that provide high care needs support.

Similar to home care, in Ontario, long-term care home referrals and waitlists are managed by Home and Community Care Support Services (Ontario Ministry of Health 2022). Case workers assess eligibility and priority for those eligible based on need for support for medical and personal care, one's assistance of daily living (ADL) score, and safety issues. Those deemed eligible are individuals who cannot live in the community and do not have acute needs that need to be addressed in hospitals. A potential resident at the time of application can select and rank up to five homes that they prefer, and their admission is influenced by the availability of a bed and the urgency of their condition. Data on long-term care from 2017 showed that ethno-specific long-term care homes had longer waiting lists than non-ethno-specific homes (Um and Lightman 2017). This could have been because of a combination of factors - increased demand for culturally sensitive care, limited number of ethno-specific homes (56 as of 2019), and the challenges to being inclusive to the high number of ethnic and cultural identities that exist in Ontario.

Long-term care homes fall under the legislative jurisdiction of the Ministry of Long-Term Care and the new Fixing Long-term Care Act, 2021 (Ontario's Regulatory Registry 2022). The new Act replaced the Long-Term Care Homes Act, 2007. It maintained parts of the previous legislation and added new regulations that address external reviews and the need for reform. Some relevant regulations include a) setting a target for an average of four hours of direct care to be provided per resident by March 2025, b) expanding rights of clients to have support from caregivers, c) placing greater emphasis on quality of care and quality improvement, and d) ensuring that the care set out in the plan of care is based on an assessment of the resident and on the needs and preferences of

that resident. In August 2022, a new bill was introduced that amended the Fixing Long-term Care Act and added that hospitals would be allowed to transfer patients awaiting a bed in their preferred long-term care home to a "temporary home" (Legislative Assembly of Ontario 2022). Early critics have suggested this will take people's choices away and affect vulnerable populations who cannot advocate for themselves (Balintic 2022).

In 2018, provincial funding for long-term care was $4.28 billion (7% of the overall health budget) or $149.95 per resident per day. The amount of funding to long-term care homes increased during the Covid-19 pandemic (Government of Ontario 2022). The government sets the amount each individual must pay for accommodations each year and it is the same across all homes in the province – if non-affordable, individuals can apply for rate reduction. A subsidy can be provided to individuals with low income, and it can cover up to the cost for a standard (also known as basic) room (Ontario Ministry of Health 2022). In July 2019, the rates were: $1890/month for a standard room (shared bedroom/washroom with up to 4 residents), $2280/month for a semi-private room (single room with a shared bathroom), and $2700/month for a private room (single room with a private bathroom) (Ontario Ministry of Health 2022).

4.1.3 Study Rationale

The rationale to conduct this study is multifold. The demand for both home care and long-term care among seniors is predicted to increase with increasing senior population (Statistics Canada, 2017, 2018). In 2014, over six million Canadians were aged 65 or older, representing 15.6 percent of Canada's population, and it is expected to be 23% by 2036 (Government of Canada 2014). In the province of Ontario, the senior population is projected to increase from 2.2 million (16%) in 2015 to over 4.5 million (25.3%) by 2041 (Ontario Ministry of Finance 2019). The increase in seniors in Canada has been reported to be a result of increased longevity and aging baby boomers (Government of Canada 2014). Recent surveys show that majority of seniors want to age at home (96% reported in Home Care Ontario's report), indicating that demand for home care use will increase (Ontario 2021). At the same time, the demand for long-term care institutions is also increasing given the frailty of the elderly population with complex needs who need more support. Moreover, seniors in Canada account for 45% of provincial and territorial government health care dollars with most of that money being directed towards hospital use (Naylor, Boozary, and Adams 2020). In fact, it costs more than $700 a day to treat a patient in hospital versus $200 a day for someone in long-term care and $103 for home care (Casey n.d.). As such, both from the perspective of the government and families, there is growing interest in seniors aging at home and in the community. This renders the significance of studying the trade-offs between different types of elderly care institutions as well as their attributes to understand the values individuals place on certain aspects of care in different medical and social situations. How people value care settings also has implications for funding. Long-term care home expenditures have continuously represented approximately 80% of the long-term care budget over the last two decades (with the remaining budget allocated to home care and long-term care provided in hospitals), despite the growing advocacy for moving care to the home (Grignon and Spencer 2018).

Along with the number of seniors in Canada, the diversity of the Canadian population have also increased. Canada's immigration policies has resulted in a high number of immigrants arriving to Canada each year (Statistics Canada, 2006). Toronto, Ontario's capital and largest city, saw a

131% increase in the number of visible minority seniors between 2006 and 2011 (Statistics Canada 2018). Many of the current senior immigrants either arrived to Canada at a younger age and have aged in Canada or arrived recently through family-class immigration. While most senior foreign-born immigrants identified as being European before, many now self-identify as being Asian (Statistics Canada 2018).

Preferences for senior care among immigrants in Ontario is largely unknown. While immigrants will make up a large profile of future users, use of home care and long-term care is currently low among this vulnerable group. It is timely to study their preferences for care in order to inform future research and policy. Research has shown that immigrants and ethnic communities face many challenges in accessing and using services including low-income, barriers in transportation or communication, lack of knowledge of the health care system, cultural beliefs that oppose mainstream care, stigma, and social isolation (Gupta and Vijayan 2020; Kaida and Boyd 2011; Lai and Surood 2010; Patterson, Kyu, and Georgiades 2013; Ross, Mueller, and Sweetman 2016; Wang, Guruge, and Montana 2019). Also, historically, there exists a preference for informal familial care among many immigrant groups. However, informal caregivers providing care to these diverse populations because of cultural norms and/or unmet need are increasingly experiencing stress and burnout, rendering informal caregiving unsustainable in the long-term (Gupta and Vijayan 2020). There is a need to understand the preferences for care among diverse populations in order to shape health care services in Ontario, and make access more equitable, especially given the fact that the health status of immigrants deteriorates with duration and age in Canada (Vang et al. 2017).

Furthermore, there are several policy issues associated with home care and long-term care systems in Ontario that need further attention, including lengthy wait-times, high costs, poor coordination, part-time staffing, and wage parity (Straus et al. 2021). One of the major challenges in both the home care and long-term care sectors continues to be staffing. Many caregivers that work directly with clients are part-time, which leads to a greater rotation of staff members. Not only is this problematic for clients who wish to build a rapport with their caregivers, especially those with cognitive impairments who benefit from having consistency, it creates challenges for caregivers. With increased risk, pay inequities across settings, and provider burnout, there are staff shortages in both home care and long-term care. The home care sector has gone from being able to fill 9.5 visits out of every ten requested pre-pandemic, to just four visits out of ten as of August 2021 (Ketchen 2021). At the same time, home care use among dementia patients increased during the later stages of the pandemic to levels higher than pre-pandemic levels (Jones et al. 2021). Home care, in particular, is in crises because of home care workers transitioning into hospitals and long-term care homes where pay is higher (Casey 2021).

The Covid-19 pandemic has acted as a focusing event highlighting pitfalls in the health care system as well as the need for reform. During the first wave of the pandemic (March through August 2020), residents of nursing and seniors' homes accounted for more than 80% of all reported Covid-19 deaths (Canadian Institute for Health Information 2021). Reports from March 2021 indicated that nursing and seniors' homes continued to account for the greatest proportion of outbreak-related cases and deaths, representing about seven percent of all cases and more than 50% of all deaths (Public Health Agency of Canada 2022). In fact, among the twelve OECD (Organisation for Economic Co-operation and Development) nations, Canada had the highest rate of outbreaks

and deaths that occurred in long-term care homes. The pandemic raised the awareness of the need for quality improvement in long-term care homes. The pandemic also highlighted the problem of an increase in Alternate Level of Care (ALC) days which are defined as days in hospitals that patients do not require hospital services (Canadian Institute for Health Information 2021; Gibbard 2017). ALC patients still require care but in a different setting such as long-term care homes or at home with home care services. An increase in ALC days implies that patients did not receive services in the appropriate setting and there was an inefficient use of hospital services. On the demand side, at the same time, the pandemic increased people's awareness of the challenges in the home care and long-term care home systems and possibly increased people's desire to age at home. Both home care and long-term care systems need to be improved in order to prevent dire consequences for seniors, especially in future public health emergencies. The implementation of Ontario Health Teams acts as a policy window to create change in home care and long-term care as health and social care in Ontario is transforming to become more integrated and person-centered. Conducting a preference survey at this point, which is two and a half years after the pandemic began, informs us about people's preferences after they have learned about home care and long-term care systems' current context and are thinking about Covid-19 recovery and the future.

Lastly, as mentioned in the literature review section of this paper, to my knowledge, there are very few studies that have been conducted in the Canadian context that examined preferences for senior-care settings and none that focused on the immigrant population. A previous review conducted by Lehnert et al. on stated preferences for long-term care showed scarcity of research in this field, and highlighted that very few studies have used rigorous methods such as discrete choice experiments to explore preferences (Lehnert et al. 2019). Research is needed to understand the preferences of future residents in order to inform the changes that are needed in Ontario's senior care system.

4.2 Methods

4.2.1 Research questions

The broad research questions for this study were as follows:

1) For a hypothetical future situation in which a person is 80 years old, has dementia and is eligible for both home care and long-term care (as determined by their care needs), which senior care setting is preferred?

2) What attributes of care are preferred (e.g., low cost, culturally adapted care) by older adults when they face trade-offs between them?

3) How do preferences differ by immigrant status and sex?

4) What is the probability of selecting home care (or long-term care) when home care and long-term care are designed to be at their worst and/or best?

4.2.2 Study Description

To study preferences, a discrete choice experiment was conducted. It is a stated preference method that is used to elicit and study preferences of individuals (Akiva, McFadden, and Train 2019; Johnson et al. 2013; Manski 2010; Salloum et al. 2017). The technique originated in marketing and economics, and has become a widely used method for studying preferences of various groups (e.g.,, the public, stakeholders, etc.) for the purposes of policy development and implementation (Louviere, Hensher, and Swait 2000; Mentzakis et al. 2019). It is especially valuable in studying the determinants of decisions that are not easily observable or for which a market does not exist (Lagarde and Blaauw 2009). In a discrete choice experiment, participants are provided with hypothetical choice sets with at least two alternatives (Delavande and Manski 2015). Each alternative contains at least two attributes, that is, characteristics of a good that have two or more fixed levels. Participants are asked to make a choice between the alternatives, indicating their preferences for the alternative that is of greater value to them.

The analysis of the responses makes evident how willing individuals are to trade-off one attribute for another. When one of the attributes is the cost of the good or service, it allows one to indirectly determine willingness-to-pay for the attributes. The discrete choice experiment method is grounded on Lancaster's theory of consumer behaviour, which assumes that utility is derived not from the good/service itself but from the characteristics or attributes of a good/service, and that individuals are utility-maximizing agents (Lancaster 1966). It assumes that individuals are aware of their preferences and that they have the ability to make trade-offs between time and money, and between various attributes. The benefits of using a discrete choice method compared to other stated choice methods eliciting opinions and preferences is that it forces participants to make trade-offs when making a decision mimicking realistic decision-making situations. Also, when the discrete choice experiment includes a hypothetical scenario that is presented to the participants, it informs them of the constraints and circumstances they must consider when making their decision, which helps to reduce individual-level biases.

This study used a mixed-methods approach to address the research questions using four iterative steps: literature review, qualitative interviews, pilot survey, and main survey. To ensure that relevant questions were asked in the experiment, I conducted a literature review and several key informant interviews prior to creating the survey. The study was iterative in that the survey tool changed after each of the literature review, stakeholder consultation, and piloting steps, typical of a high-quality discrete choice experiment (Johnson et al. 2013).

4.2.3 Literature review

4.2.3.1 Background

The experiment was preceded by a rapid review of primary literature on stated preferences for home care and long-term care. The main objective of the review was to identify attributes of home care and long-term care services that have previously been studied and their levels. I also wanted

to learn about the different methods that have been used to collect and analyze data, and to identify the studies that have explored differences in preferences in and across ethnic and immigrant populations. Conducting a rapid review was appropriate because it allowed me to navigate, collate, and summarize a large body of literature in a short amount of time, as opposed to a scoping or systematic review (Tricco et al. 2015). The review was built on the work conducted by Lehnert et al. (2019) and Netten et al. (2012) (Lehnert et al 2019; Netten et al. 2012). Since their searches, in 2015 and 2012 respectively, there has been an increase in literature published in the area. Also, these reviews, given their broad inclusion criteria, were limited in their ability to synthesize the literature based on attributes, population studied, geography, and other factors.

4.2.3.2 Search

After creating search terms and inclusion and exclusion criteria *a priori*, two databases were searched: Medline, and EconLit. Unpublished literature was searched in Google Scholar and the website of the National Bureau of Economic Research (NBER) working papers series. The preliminary search strategy is provided in the appendix (Appendix C1), and was created after consulting experts in reviews, health and experimental economics, and geriatrics. In addition, I browsed government and home care organization websites and verified the search by checking the references of all included studies and relevant reviews.

4.2.3.3 Relevance screening

At the abstract and title relevance screening stage, studies were included if they had, 1) primary data, 2) data on home care, long-term care homes, and/or other community institutions where seniors live and are cared for and 3) data on preferences of patients, clients, family members, or health care professionals or data on barriers and facilitators of home care, long-term care, or other types of resident homes. Studies were excluded if 1) the data were not on older adults or seniors, 2) had data on hospitals or the transition from home care/long-term care to hospitals, or 3) had data on experiences of caregiving. I placed no limits on the time frame, language of publication, or geographical regions.

At the full-text screening stage, studies were included if they included 1) quantitative data, 2) data on home care, long-term care homes, and/or other community institutions where seniors live and are cared for, and 3) data on preferences of patients, clients, family members, or health care professionals or data on barriers and facilitators of home care, long-term care, or other types of resident homes. Studies were excluded if the data was 1) not on older adults or seniors, 2) on hospitals or the transition from home care/long-term care/resident homes to hospitals, 3) on experiences of caregiving, 4) on preferences for where to die, 4) on menu or dining preferences without comparison to other characteristics of home or long-term care, 5) on telepharmacy, 6) on use or factors associated with home care or long-term care use and not on preferences, and/or 7) on short-term stay. At the last stage of review, I only included studies that used discrete choice experiment methods.

4.2.3.4 Data extraction

Data were extracted on general characteristics of study (i.e., year of publication, country, theoretical or conceptual model used, conflict of interest, source of funding), data collection (i.e., definition of home or long-term care, method of data collection, recruitment strategy, data collection period, sample size, response rate, incentivization), questionnaire design (i.e., number of questions, demographic questions asked, number of versions), study population characteristics (i.e., location, sex, gender, age, ethnicity, medical condition, social condition), study design (i.e., research question, design, analytical approach, outcomes studied, attributes, levels, stratification), main effect and heterogenous results, and study limitations as stated by authors. The data extraction form is presented in the appendix (Appendix C4).

4.2.3.5 Analysis

Findings, methods utilized including sampling strategy, data collection. and data analysis, and study limitations were captured and summarized in tabular format. After reviewing the included studies, a list of attributes was created along with their levels as well as a list of demographic questions. The attributes and demographic questions were analyzed and compared, and the ones that were relevant to the home care and long-term context in Ontario were selected and inserted into the first draft of the questionnaire, which was then discussed with key informants.

4.2.3.6 Review management

Covidence, an online software for managing systematic reviews, was used for relevance screening. At least two reviewers screened and extracted citations independently[1]. Conflicts were resolved between the two reviewers after conversing and/or a third reviewer. Microsoft Excel was used for extracting data and creating summary tables.

4.2.4 Key informant interviews

4.2.4.1 Rationale

Qualitative research consists of multiple methodologies and methods to acquire in-depth understanding of topics or experiences. Qualitative health research can be used to identify health care needs, patterns of seeking health care, the illness experience, or evaluate health care (Fisher and Hamer 2020). In health economics, qualitative research is increasingly being utilized to provide contextual information as well as provide meaning to the quantitative findings. I aimed to use qualitative research in order to: 1) explore the context of senior care in Ontario, including current and future policies, institutional background, and strengths and limitations of current sectors (home care, long-term care, and retirement homes); 2) assess the attributes and levels identified through the literature search; 3) identify additional attributes and levels; and 4) elicit perspectives on the experiment design, content, and objectives. The use of qualitative work prior to conducting a discrete choice experiment is recommended (Lancsar, Fiebig, and Hole 2017).

[1] Reviewers included four research assistants and myself.

4.2.4.2 Methodology

I utilized Sandowlowski's exploratory qualitative description methodology (Sandelowski 2000). It allowed me to stay close to what the participants said in the interviews and gain comprehensive data that informed the survey tool of the discrete choice experiment.

4.2.4.3 Study Population

The target population of the qualitative component of this study were service providers, older adults who were 55 years or older, researchers, and decision makers, who were located in Ontario.

I sought the insights of service providers with the recognition that because of their different occupations (e.g., personnel support workers, nurses, etc.), they may have had varying experiences and knowledge of their clients' needs and preferences, and of the home care and long-term care systems more broadly. Individuals who were in positions of leadership in the home care and/or long-term care systems were also approached as they would have an understanding of the senior care system in Ontario. I targeted decision-makers at long-term care or resident homes, Home and Community Care Services, the Ministry of Health and Long-Term Care, nursing organizations, and various care organizations. Inputs of researchers with expertise in the topic of aging were obtained in order to inform the experiment. Researchers may have already studied barriers and facilitators to use of home care, long-term care and/or retirement homes and/or understood the current policy context. Attempt was also made to recruit researchers who had experience in immigrant health services research as well. Lastly, given that the implications of this study were to inform policies for home care and long-term care that work toward ensuring that the care system aligns with the demands of clients, it was imperative that I collect data from individuals who would be impacted by the findings. Older adults from the community, immigrants and non-immigrants, who were 55 years old or older were thus included. While service providers, researchers, and decision-makers had to have some experience in home care and/or long-term care in Ontario in order to be eligible for this study, there was no such criteria for older adults as I was interested in learning from those who were both experienced and inexperienced in care settings.

4.2.4.4 Sampling and Sample Size

Participants were recruited through three sampling methods: purposive sampling, social media sampling, and snowball sampling. Maximum variation sampling was used in order to elicit data from the four different types of stakeholders.

An initial list of stakeholders was made after reading the literature, speaking with experts in the field, and searching organization websites. Stakeholders were then purposively recruited via email. Older adults were recruited through organizations who agreed to reach out to their listservs to recruit. Twitter was also used to advertise the study and recruit participants. Snowball sampling approach was used to contact more stakeholders to reach thematic saturation. Participants at the end of the interview were asked whether they would recommend anyone to participate in the study. I then emailed the recommended individuals inviting them to participate. Given that

qualitative research sampling can be iterative, I kept on sampling until I achieved data saturation (the point at which no further themes emerge from the data collected) within each group.

4.2.4.5 Data Collection Method

Semi-structured key informant interviews were conducted over Zoom between June and December 2021, using an interview guide which was created to frame the discussion (see guide in Appendix C5). Participants were first asked about how they would describe home care, long-term care, and retirement homes in Ontario. They were then asked about their role and experience in senior care settings, followed up with questions on what they think are important factors that people consider when selecting a care setting and what trade-offs they might have to make. The interview guide included both specific and open-ended questions along with sub-questions and probes to keep the conversation focused and extract as much relevant data as possible. The interview guide was piloted among colleagues in order to correct the wording and formatting of the questions, length of the interview, and cohesiveness, comprehensiveness and complexity of the guide. The interviews were audio recorded and were transcribed post-interview using the assistance of two research assistants.

4.2.4.6 Data Analysis

Thematic content analysis was conducted. Data were first open coded carefully to identify common themes. The themes were then categorized into larger categories that were altered iteratively. Categories were based on the questions asked in the survey and included barriers to home care and long-term care use, facilitators to use, preferences for certain care program features, current context, future of home care and long-term care, and experiment improvement. The data was then coded a second time using focused coding to verify and confirm the codes and themes.

4.2.5 Pilot Survey

I conducted three pilot surveys prior to implementing the main survey to ensure that the experiment was understood by the participants and the survey ran as expected logistically. Participants were recruited for the pilot studies via the same methods as the main survey (described further in section 4.2.6.3). A total of 31, 182, and 23 participants were recruited for the three pilots, respectively. Results of the first pilot showed that participants were completing the survey quicker than expected and as such, the next survey iteration included questions that attempted to identify low-quality respondents. Categories of some sociodemographic questions were also adjusted after the first pilot. After the second pilot, a dominance test was added to the survey to again test the quality of the responses. Since the sociodemographic questions and choice sets did not change after the first pilot, data from the second and third pilot surveys were included in the final analysis.

4.2.6 Experiment

4.2.6.1 Study Design

After conducting the literature review that included relevant studies on preferences for home care and/or long-term care as well as running key informant interviews with stakeholders, the questionnaire was designed. The DCE involved choices between two alternatives: home care and long-term care. The possibility of opting out was not offered as I was interested in determining which characteristics determined the most preferred setting, and so the opt-out option was not needed. The scenario was described in such a way that people were told that they had only two options, which is often the real-life decision context. Also, previous research had shown that the opt-out option was selected more often when difficult trade-offs were asked to be made, as was the case in this study (Luce, Payne, and Bettman 1999; Veldwijk et al. 2014).

The number of choice sets and the attribute level combinations were determined using experimental design techniques in order to maintain efficiency. I included seven attributes, with between two and six levels each; they are detailed in the appendix (Appendix C7). The attributes were selected after reviewing the literature and conducting qualitative interviews that helped to understand the context of home care and long-term care in Ontario. In order to determine the marginal valuations of attributes and the willingness-to-pay for changes in attributes, cost was included as an attribute.

Given that a full factorial design with seven attributes would have contained hundreds of combinations or choices which were impractical to test, especially among older adults, a labelled fractional factorial forced-choice blocked design was used to select ten choice sets (Hensher, Rose, and Greene 2005; Louviere, Hensher, and Swait 2000). Since a questionnaire with ten choices was still lengthy and complicated for older adults to complete, choice sets were "blocked" into two sets with five choice sets each. The choice sets were designed using Ngene software (version 1.2.1).

Each study participant was randomly assigned to one of the two blocks. An attempt was made to keep the blocks balanced in terms of the total number of participants, and the number of immigrants and non-immigrants, and males and females, in each. Prior to the choice sets, participants were presented with a hypothetical scenario (i.e., a study vignette) which outlined their health and social condition (see Appendix C7 for questionnaire). Given the complexities in the long-term care and home care systems, and the knowledge that people's understanding of them varies, I provided some baseline information on the two alternatives. Participants were then presented with the five choice sets, one by one, with the following question: "If these are the only two options, which one would you choose?" and the options: "Home care" or "Long-term care". An example of a choice set is presented in the appendix (Appendix C7).

I employed a labelled forced-choice experimental design (Hensher, Rose, and Greene 2005; Louviere, Hensher, and Swait 2000). Unlike unlabelled designs, in labelled designs, a "label" was attached to each alternative which ultimately influenced the choices made. It also allowed for there

to be different sets of attributes across the two alternatives (i.e.,, distance to family and friends was relevant to long-term care while hours of care was relevant to home care). A forced-choice design was appropriate as it forced participants to make trade-offs between the attributes even when neither of the alternatives were desired (Hensher, Rose, and Greene 2005).

To understand the demographics of the study sample, at the end of the questionnaire participants were also asked questions on personal demographics (e.g., sex, employment status), household demographics (e.g., type of residence, household income), health status, and health service use. In alignment with previous discrete choice experiments, to test quality of responses, I included a dominance choice set as the sixth choice set (Janssen et al. 2017). In this choice set, I presented two home care alternatives in which the dominant alternative had lower cost and lower wait time compared to the non-dominant one. I included two further tests to test for participants' understanding and attention. First, I asked participants about their age in two separate portions of the questionnaire. I asked them "what is your age (in years)" as well as "what year were you born". With the understanding that these responses may not directly align depending on what month they were born in and when this survey was conducted, respondents with answers that differed by more than two years were flagged. Second, after presenting information about the study vignette and attributes, and presenting a choice set example, I asked "What medical condition are you told you have in the hypothetical scenario," with the options "diabetes", "hip fracture", "dementia" and "cardiovascular disease"**.**

4.2.6.2 Hypothetical Scenario

Participants were told to imagine what they would prefer in their care package when they turn 80-years-old and have mild-level dementia. The study focused on dementia which aligned with evidence that showed a high prevalence of dementia in the community as well as in long-term care homes. In Canada, the number of individuals living with dementia was 564,000 in 2016 and it was projected that the number would double every 15 to 20 years (Wong, Gilmour, and Ramage-Morin 2016). I focused on mild-level of dementia because with proper supports, people living with mild-level dementia are eligible for both home care and long-term care services. Many individuals currently living in long-term care have mild-level dementia (Aryal et al. 2021).

In alignment with the Alzheimer's Society, I described mild-level dementia in the hypothetical scenario as a condition affecting memory, language, and judgement, as well as one's ability to independently complete daily tasks such as toileting, dressing, and cooking and medical tasks such as taking medications (to learn more see https://alzheimer.ca/en/about-dementia). Because the targeted population of this study included immigrants, many of whom were multilingual, I specifically highlighted that if participants' first language was not English, given the dementia scenario they may have difficulties in communicating in it with service providers. Previous research has shown that ethnic and immigrant clients and their family members may find access to health care more challenging when it is not offered in their dominant language (Um and Lightman 2017). Importantly, this challenge is exacerbated with dementia. Furthermore, since social conditions (e.g., family support, income) also play a major role in decision-making, participants were told to imagine that everything is as they expect their lives to be at 80-years-old, and that they should take their financial and other social conditions into consideration when making their choices.

4.2.6.3 Study Sample and Recruitment

The survey was conducted with older adults who were from Ontario and were between the ages of 45 and 75, as they were in the age bracket to consider future senior care services. I focused exclusively on participants from Ontario given that health care delivery is primarily a provincial responsibility in Canada, and the systems differ across provinces and territories. Individuals living in a long-term care home were excluded. A roughly equal number of immigrants (defined as born outside of Canada) and non-immigrants (defined as born in Canada) as well as males and females were recruited.

There is no consensus in the literature regarding how to determine the sample size for the study so that there is sufficient power to detect a difference between the attributes (de Bekker-Grob et al. 2015). However, using guidelines presented by Johnson and Orne (Johnson and Orme 2003) and considering the research design (number of attributes, levels, choice sets, subgroups), 200 participants were predicted to be sufficient for each of the four immigrant/non-immigrant and female/male subgroups. However, to err on the side of caution and to increase the power of the study a larger target was selected; the final sample size was 1057 participants.

Participants were recruited by Leger Inc., a Canadian market research and analytics company, from their online panel, Leger Opinion, which had approximately 400,000 members at the time of the survey. Leger Opinion is commonly utilized by academics, businesses, and non-governmental and governmental organizations to conduct web-based surveys (to learn more, see: https://www.legeropinion.com/en/). All participants were given a unique link to participate in the survey. The purpose of this unique code was to ensure that a given participant was only completing one survey, and not multiple. Leger compensated its panel participants directly though Leo Points. After completing each survey, participants received points that they were able to use to redeem for Air Miles, Aeroplan points, Uber/Uber Eats credits, Starbucks gift cards, PayPal transfers, and prepaid Visa cards. Participants were also given a chance to win one of the many monthly prizes (valued at $2,500). Data were collected using LimeSurvey between May 5 and June 22, 2022.

4.2.6.4 Data Analysis

Discrete choice experiments are grounded on Lancaster's theory of consumer behaviour, which assumes that utility is derived not from the good/service itself but from its characteristics or attributes, and that individuals are utility-maximizing agents (Lancaster 1966). It assumes that individuals have knowledge or are aware of their preferences and that they have the ability to make trade-offs. My analyses of discrete choice data were based on a random utility model, with the assumptions that a person would choose the alternative that provides the most utility to them as a function of the attribute levels included.

The utility U for individual q for the ith alternative was modelled as:

$$U_{iq} = V_{iq} + \varepsilon_{iq} \qquad \text{Eq. 1}$$

where the observable component of the utility function (V) was represented as:

$$V_{iq} = \sum_{k=1}^{K} B_k X_{ikq} \quad \text{Eq. 2}$$

with k attributes. The unobserved component (ε_{iq}) was the error term due to unobserved features of preferences. B was the associated regression coefficient, indicating the main effect of the attribute k on utility.

The attributes ”price”, “wait time”, and “number of hours of care” were modeled as linear variables, while “room type” was modeled as deviation from the reference level of “standard room” with dummy variables. The variables “presence of culturally adapted care”, “rotation of staff members”, and “distance to family and friends” were dichotomized.

Indirect utility was represented by:

U= b0 + b1*hours + b21*semi-private room + b22*private room + b3*team + b4*culturally-adapted care + b5*wait-time + b6*price + b7*distance Eq. 3

To investigate main effects, assuming a binary distribution, a conditional logit model was utilized to model choices as a function of the characteristics of alternatives (as opposed to characteristics of individuals in multinomial logit). Given that the conditional logit model is a type of fixed-effects model (i.e., a statistical model in which the model parameters are fixed), only variables that vary within-group were included (i.e., the attributes), and variables at individual and household levels that do not vary within a choice set such as sex and household income were not.

Model estimation considered the fact that there were multiple observations for each study participant, reflecting the number of choice sets they completed, by clustering observations at the participant level. For the regression analysis, responses to the dominant choice set were excluded.

Since the experiment included the monetary term of “price”, the marginal rates of substitution arising from the ratio of a utility parameter and price, holding all other parameters constant, indicated the willingness-to-pay (WTP).

$$WTP_{attribute} = (B_{attribute} / B_{price\ attribute}) \quad \text{Eq. 4}$$

It must be mentioned that hours of care, price, and wait-time variables were transformed by dividing the data points by five, 1000, and twelve respectively, to avoid reporting coefficients of zero. However, to make interpretations of the willingness-to-pay estimates easier, they were re-transformed to their natural units afterward.

To investigate heterogenous effects, specifically to study preferences across immigrant status and sex, stratified analysis was subsequently conducted. The sample was divided into strata, and the regression model was run separately within each. This determined the WTP separately for immigrants and non-immigrants and males and females.

Finally, predicted probabilities were calculated as a simulation exercise. The probability for individual q choosing alternative i was specified as:

$$P_{iq} = \frac{\exp(V_{iq})}{\Sigma_{j=1}^{J} \exp(V_{jq})} \quad \text{Eq. 5}$$

Four different scenarios were created, and in each, a home care case was compared to a long-term care case and the probabilities of choosing home care and long-term care were estimated. The scenarios were: 1) best home care versus best long-term care, 2) best home care versus worst long-term care, 3) worst home care versus best long-term care, and 4) worst home care versus worst long-term care. As such, the scenarios compared home care and long-term care at their extremes. The best home care option included eight hours of care, lower rotation of staff members, culturally adapted care, no wait-time, and no cost. The best long-term care option included a private room, and 20 to 30-minute distance to family and friends. Similar to the best home care option, the best long-term care option also included lower rotation of staff members, culturally adapted care, no wait-time, and no cost. The worst home care option included two hours of care, greater rotation of staff members, no culturally adapted care, wait-time of 24 months, and cost of $8000 per month. Lastly, the worst long-term care option included a standard bedroom, distance of 1 to 1.5 hours to family and friends, greater rotation of staff members, no culturally adapted care, wait time of 24 months, and cost of $3000. It is worth clarifying that although I identified the cases using the terms "best" and "worst", these terms were used relatively. Home care and long-term care alternatives were described as "best" and "worst" using only the characteristics and data that was included in this study. Determining willingness-to-pay estimates and predicted probabilities were helpful in enriching the point estimates to a distribution of values and obtaining quantitative interpretations.

The data were organized and analyzed using Stata 17.0.

4.2.6.5 Ethics

Ethical approval to collect primary data was obtained from Hamilton Integrated Research Ethics Board (Reference # 2021-10632-GRA for qualitative data and reference # 2021-13292-GRA for quantitative data).

4.3 Results

4.3.1 Literature Review Results

The search strategy yielded 22,403 citations (see Appendix C2 for Prisma diagram). After removal of 2,226 duplicates, 20,177 citations were screened for relevance on title and abstract. After procuring and reviewing 344 full-text papers, 244 were excluded. Major reasons for exclusion included studies a) not having data on preferences, b) not having quantitative data, or c) being an editorial or commentary with no sufficient data to extract. I also excluded studies that focused on specific preferences on everyday living such as bathing and nutrition, as they were beyond the scope of the review, as well as those that looked at preference for death location without looking at preference for end-of-life care, and long-term care insurance without making comparisons to other aspects of care such as the number of caregivers. A total of 100 studies were relevant to the review in terms of research scope, of which eight were included and extracted as they used the

method of discrete choice experiments (Chester et al. 2018; Chu et al. 2014; Dixon et al. 2015; Finkelstein et al. 2015; Kaambwa et al. 2015; Lehnert et al. 2018; Nieboer, Koolman, and Stolk 2010; Sawamura, Sano, and Nakanishi 2015).

One study had data from Australia (Kaambwa et al. 2015), four from Europe (Chester et al. 2018; Dixon et al. 2015; Lehnert et al. 2018; Nieboer, Koolman, and Stolk 2010), and three from East Asia (Chu et al. 2014; Finkelstein et al. 2015; Sawamura, Sano, and Nakanishi 2015). Three studied preferences of clients (Chu et al. 2014; Dixon et al. 2015; Kaambwa et al. 2015), two studied caregivers' (Chester et al. 2018; Kaambwa et al. 2015), three studied patients' (Chester et al. 2018; Dixon et al. 2015; Finkelstein et al. 2015), and four studied community members' preferences (Finkelstein et al. 2015; Lehnert et al. 2018; Nieboer, Koolman, and Stolk 2010; Sawamura, Sano, and Nakanishi 2015). No discrete choice experiments focused on immigrant or ethnic populations, but three did include immigrant status or ethnicity as a demographic question (Chester et al. 2018; Finkelstein et al. 2015; Kaambwa et al. 2015). In the majority of studies, data were collected through in-person surveys (n=6). Three studies used online surveys. Of these, in one study, a combination of in-person survey and online questionnaires was used (Chester et al. 2018) while in another (Lehnert et al. 2018), a combination of mailed and online questionnaires was used. In those studies in which a community sample was obtained, participants were either randomly selected from directly approaching them (Finkelstein et al. 2015), using municipal records (Sawamura, Sano, and Nakanishi 2015) or registered phone numbers (Lehnert et al. 2018) or were recruited from an online panel (Nieboer, Koolman, and Stolk 2010). In all the studies where patients or users were included, purposeful sampling was conducted. Sample size ranged from 77 participants in Dixon et al. (2013) (Dixon et al. 2015) to 1540 participants in Chu et al. (2014) (Chu et al. 2014).

Six studies included vignettes, five of which described health conditions (Chester et al. 2018; Chu et al. 2014; Lehnert et al. 2018; Nieboer, Koolman, and Stolk 2010; Sawamura, Sano, and Nakanishi 2015) and three described social conditions (Lehnert et al. 2018; Nieboer, Koolman, and Stolk 2010; Sawamura, Sano, and Nakanishi 2015). Notably, Lehnert et al. (2018) asked participants to imagine themselves as elderly individuals with health problems, functional limitations, caregiving limitations, and in need of long-term care (Lehnert et al. 2018). Sawamura et al. (2015) described a 80-year old Japanese person who had symptoms of dementia and had inconsistence issues (Sawamura, Sano, and Nakanishi 2015). They also illustrated that their family members were unable to take of them because they had health concerns or work commitments. Chester et al. (2018) in their vignette described the range of respite care service options available (Chester et al. 2018). Lastly, Nieboer et al. (2010) described different hypothetical conditions in which a person lived with either dementia or frailty and either had a partner or were single (Nieboer, Koolman, and Stolk 2010).

The number of choice sets ranged from six to 256. Five studies used blocks – three in Kaambwa et al. 2015 (Kaambwa et al. 2015), two in Dixon, et al. 2013 (Dixon et al. 2015), four in Finkelstein et al. 2015 (Finkelstein et al. 2015), three in Sawamura et al. (Sawamura, Sano, and Nakanishi 2015) and 32 in Nieboer et al. 2010 (Nieboer, Koolman, and Stolk 2010). All studies compared two alternatives. The number of attributes ranged from three in Chu et al. 2014 (Chu et al. 2014) and ten in Nieboer et al (Nieboer, Koolman, and Stolk 2010). The most commonly studied attributes were choice of service provider or caregiver (Dixon et al. 2015; Kaambwa et al. 2015;

Lehnert et al. n.d.; Nieboer, Koolman, and Stolk 2010; Sawamura, Sano, and Nakanishi 2015) and co-payment or cost (Chester et al. 2018; Dixon et al. 2015; Finkelstein et al. 2015; Kaambwa et al. 2015; Lehnert et al. 2018; Nieboer, Koolman, and Stolk 2010; Sawamura, Sano, and Nakanishi 2015). Other attributes studied included frequency of care (Dixon et al. 2015; Finkelstein et al. 2015), source of payment (Finkelstein et al. 2015), quality of experience (Finkelstein et al. 2015; Lehnert et al. 2018), who provides care (Nieboer, Koolman, and Stolk 2010), and wait time (Nieboer, Koolman, and Stolk 2010; Sawamura, Sano, and Nakanishi 2015) (attributes listed in Appendix C3). Lastly, the number of levels for each attribute ranged from two to four levels. Except for Lehnert et al. 2018 (Lehnert et al. 2018), Sawamura et al. (2015) (Sawamura, Sano, and Nakanishi 2015), and Nieboer et al. (2010) all studies had an equal number of levels for each included attribute.

Only four studies compared preferences for different settings of care. Dixon et al. (2013) found location to be the most important, with home being preferred the most and hospital and residential care preferred the least (Dixon et al. 2015). Finkelstein et al. (2015) showed that both community dwellers and cancer patients preferred to be at home for their end-of-life care compared to hospital, hospice, or nursing home (Finkelstein et al. 2015). Kaambwa et al. (2015) found that the most preferred package is one where clients have access to multiple service providers, are able to save half of the unused funds for future use, are able to choose some of the support workers providing care, have medium contact with their service provider, consumers themselves manage budgets and support workers are partly flexible around the care activities they provide (Kaambwa et al. 2015). Lastly, Nieboer et al. (2010) found that for frail elderly with a partner, living independently at home was preferred over moving to an elderly or nursing home, even when it was more expensive to live at home. In studies that looked at cost, lower cost or copayment was always preferred (Chester et al. 2018; Finkelstein et al. 2015; Lehnert et al. 2018; Nieboer, Koolman, and Stolk 2010; Sawamura, Sano, and Nakanishi 2015). In studies that compared preferences among two groups (caregivers versus clients in Kaambwa et al. 2015 (Kaambwa et al. 2015) and community dwellers versus cancer patients in Finkelstein et al. 2015 (Finkelstein et al. 2015)), no statistically significant difference was found. However, cancer patients were shown to have a higher willingness-to-pay for all attributes of care compared to community dwellers.

A few studies investigated whether there were differences in estimates depending on personal-level factors. Finkelstein et al. (2015) found that there was no statistically significant difference in willingness-to-pay estimates for extending life by another year between lower- and higher-income patients (Finkelstein et al. 2015). Stratified by income, Nieboer et al. (2010) showed that those with higher income were willing to pay 30% more for all features (e.g., coordinated care, organized social activities, low wait time) and preferred individualized care over standard care. The exception was that low-income groups were willing to pay more for protected housing than were high income groups. In addition, differences were seen in preferences depending on medical condition described. For instance, Sawamura et al. (2015) saw that participants in the dementia group gave importance to private rooms and low wait time (Sawamura, Sano, and Nakanishi 2015). Participants in the fracture group did not show significant preferences for these factors but instead valued daily interaction with family and friends.

4.3.2 Qualitative Interviews Results

Fifteen participants were interviewed of which three were service providers, two were decision makers, one was a researcher, two were researchers who were also service-providers, three were decision makers who were also researchers, and four were older adults from the community. Six identified as males and nine identified as females. Of the four community members, two had experience with the home care and long-term care systems. The themes that emerged from the interviews were consistent across the subgroups, and so, are presented here as a whole. As a component of the interview, participants provided recommendations on the survey tool in terms of the content as well as wording. As these recommendations were very specific and changed throughout the interview period as I edited the questionnaire iteratively, they will not be expanded upon here. Quotes supporting the themes are provided in the appendix (Appendix C6).

Theme 1: Limitations and barriers of the existing system

When describing home care, long-term care, and retirement homes in Ontario, all participants described the overall system to be decentralized and fragmented. They noted that the regulations differ across the settings partly because the settings are under different ministries. They added that this also influences funding and the way Ontarians think about services. Participants described the level of organization to differ across the settings in which home care was described to be the most disorganized, long-term care was the least, and retirement homes were in the middle. On a similar note, home care and retirement homes were said to be disintegrated from the health care system whereas long-term care was described to be linked with health care. Home care, in particular, was described to be poorly delivered because of multiple organizations competing for contracts and wide rotation of staff members where many workers are working part-time at multiple locations. Furthermore, outside of decentralization, a common limitation of the system that arose in the conversations was funding. Participants mentioned that hospital budgets continue to rise as acute care requires greater amount of funding and as a result less focus has been on funding home care. One participant mentioned that long-term care homes are specifically costly because of the costs associated with the urban land that they are built on.

Theme 2: Patients do not have choices

When participants were asked about the trade-offs that older adults have to make when choosing a care setting, they frequently mentioned that people do not have choices when it comes to long-term care. They described that although individuals do have preferences in terms of which location they prefer, it is mostly situations outside of their control that determine which location they end up in, such as wait-time. Also, they stated that many residents enter long-term care homes when they are in crisis situations, at which point they have to enter the home that has a bed readily available. All of this to say that people's preferences are not being met when there is no choice. They mentioned that it is often individuals of older age and with cognitive and health impairment that go to long-term care homes and added that many do not want to go into the long-term care system and home care is their first choice, but it is their health and social conditions that "force" them to move to a long-term care home. Many participants used the example of dementia patients and patients who do not have family members to help support them at home when illustrating that people who enter long-term care homes may not have a choice. One participant

also highlighted that a long-term care home is not preferred when only one spouse is sick and the other is healthy.

A lack of choice was also mentioned in the context of home care. One participant noted that even government-deemed eligible patients received fewer hours of care than they needed. Although lack of choice was mentioned to be the most prominent for patients obtaining government-provided care, participants also mentioned that patients purchasing care privately do not have a choice as local availability of services is minimal in certain regions.

Theme 3: Preferences for and between care settings

Although it was clear that preferences "depend on the special condition or the special experience they [older adults] are living in" (male, provider)", when asking participants about their thoughts on what trade-offs people have to make when choosing between or within care settings, four attributes were dominantly mentioned: quality, safety, cost, and family and social support.

Participants mentioned that quality of care and quality of homes is very important to clients when they are choosing a care setting. They also stated that they would select quality over other attributes such as language of providers. Notably, the attribute of quality was often mentioned together with long-term care in that individuals preferred homes with higher quality.

Another attribute that was considered important when selecting a care setting was family or other social connections. Participants mentioned that individuals prefer living close to family and if family members are available to provide support, they would prefer informal care over long-term care. However, they also mentioned that their preference for having family members provide informal help depends on their health and social condition. They realized that sometimes family cannot provide care because their loved one has high care needs such as the case with dementia patients and that other times, patients themselves do not want to be a burden on their family. Some also mentioned that many older adults do not have family that they could depend on if they have lost spouses and/or have children who are working and/or have health conditions themselves.

Price was also mentioned to be a determining factor between settings. They mentioned that there is a huge price difference between home care, long-term care, and retirement homes with home care and retirement homes being expensive. They mentioned that many individuals enter a long-term care home because they cannot afford home care even though they wish to remain in the community and their needs can be met at home. One person also stressed that price should not be a differentiating factor for care in a one-tier system between and within settings. It was clarified that price currently determines the number of hours of care one receives in home care privately and the type of room one lives in a long-term care home.

Other attributes that were mentioned, but not as commonly, were wait time and professional caregiver preferences. In association with long-term care homes, participants mentioned that the wait-time for patients who are not in crises is extensively long (a range of one to eight years was mentioned) and differs by region. Interview participants who worked in the area of dementia or had family members with dementia said that it is important to have more caregivers who are full-

time and thus can provide services consistently. It was also shared that it is important for dementia patients to see a consistent face and build a relationship with their caregiver.

Theme 4: Culturally adapted care

When asked about what preferences immigrants or ethnic individuals have, all participants mentioned they would prefer culturally appropriate care. One participant mentioned the reason for this is that "they [immigrants] are more likely to feel the alienation of going to a nursing home especially if it does not have culturally appropriate services". Language was the most common aspect of culturally appropriate care that was mentioned. Participants stated that people prefer to have services in their first language in order to be able to communicate to their care providers and other residents, feel comfortable as if they are at home, and build connections. Language was mentioned to be particularly important in cases of dementia when individuals revert back to their mother tongue. Lastly, participants shared that although culturally appropriate care is preferred and sought after as evidenced by the high demand existing cultural homes by immigrants and ethnic individuals, that piece of service is currently lacking.

Theme 5: Covid-19 will influence people's preferences

All participants stated that the Covid-19 pandemic will influence people wanting to age at home. A researcher I interviewed stated that while surveys prior to Covid-19 showed approximately 75% of Canadians wanting to age at home, that percentage increased to almost 100% in recent surveys. In their opinion, the reason for this percent increase is because of Covid-19 showing the public the pitfalls of the long-term care system via the media. Other participants raised the point that family members will also prefer to keep their loved ones outside of long-term care homes because of the excess deaths that happened in long-term care homes during the Covid-19 pandemic and the negative experiences faced by residents and their family members. There is now an increase in fear of congregated settings where infections can spread quickly, and the general public does not have control over what happens inside them.

Theme 6: Aging at home phenomenon

All participants articulated that people want to age at home, where they are comfortable, independent, and close to their family and friends. A few participants added that they would stay at home until it is impossible to stay at home, due to reasons such as lack of safety or independence at long-term care homes. Long-term care was commonly reported to be the "last resort". One participant described that the only scenario in which they would enter a long-term care home is one in which they needed care for 24 hours a day as home care would be too costly for 24/7 nursing care and they would become a burden to their family. One participant mentioned that there is stigma associated with long-term care homes and that people associate them with death. For this reason, they would remain at home.

Theme 7: Improvements are needed

A recurring theme that emerged from the analysis is that other alternatives outside of the current options of home care, long-term care homes, and retirement homes should be considered to

improve the elderly care system. The most common alternative that was mentioned was paid informal help. Given that most people want to age at home, more support is needed for family members who act as caregivers. Other forms of support that were mentioned to help patients as well as their caregivers were day programs and overnight respite programs. A few participants mentioned that we should follow successes from other countries who have implemented alternatives to long-term care and expensive retirement homes. Examples provided included having a number of small-home communities and/or having a greater proportion of health care budget allocated to home care rather than long-term care.

Additional improvements for long-term care that were mentioned included increasing number of homes and beds, increasing the number of private rooms in long-term care homes to increase privacy and reduce risk of infections, and improving the quality of buildings that house long-term care homes. Improvements for home care that were mentioned included improving staff turnovers and decreasing associated costs.

4.3.3 Experiment Results

4.3.3.1 Descriptive Statistics

A total of 1057 participants completed the survey, of which 612 were non-immigrants (58%) and 445 (42%) were immigrants. There were 529 participants in block one and 528 participants in block two. Descriptive statistics are presented in Table 1. Briefly, there was a balance of males and females across the immigrant (52% males and 48% females) and non-immigrant (51% males and 49% females) groups. The average age of the sample was 62.3 (SD 9.4). The majority of the sample was not employed (n=541, 51%) followed by working-full time (n=364, 34%). About three quarters of the respondents were married or in common-law (n=776, 73%). While close to 100% of the non-immigrants were English speakers (n=584, 95%), many immigrants spoke non-Canadian official languages (76% spoke English while 22% spoke language other than English or French). Among immigrants, the majority were long-term immigrants (n=412, 93%) who were defined to be immigrants who migrated to Canada at least 10 years ago. In terms of ethnicity, 76% of the full sample was White/Caucasian, followed by 10% who were Chinese, Filipino, Japanese, or Korean, and 5% who were South Asian. Furthermore, many of the participants lived with their spouse/partner (n=516, 49%) and/or their children (n=282, 27%). Also, many lived in semi-detached or attached houses (n=698, 66%) as opposed to apartments.

Seventy-two percent reported their health to be very good or good, and 89% had three or less chronic health conditions. One participant stated they had a dementia diagnosis while 20 participants reported they had dementia-like symptoms. In terms of health care services use, 1004 (95%) did not use home care, while 30 (3%) and 19 (2%) individuals had used home care services themselves and/or their family member had used them, respectively. The majority had not considered a long-term care home or a retirement home (n=853, 81%). Furthermore, when asked whether they would have informal help available from family or friends in case they were to fall sick, the majority said they would not (69%). To pay for care in case they were to fall sick, many expected to pay for the cost themselves (n=325, 31%). Support from governmental assistance including employment insurance was expected by 328 (31%) individuals. Lastly, most participants

reported their knowledge of the health care system in Ontario to be fair (n=512, 48%) or good (n=340, 32%).

4.3.3.2 Regression Results – Main Effects

Table 2 presents the conditional logit regression results from the full sample of 1057 participants. These results provided information on the direction and precision of the effects and their statistical significance. A positive (negative) coefficient indicated an increase (decrease) in utility, compared to the baseline level of the attribute for categorical variables or increase (decrease) in utility for an additional unit of the attribute for linear variables. Compared to long-term care, home care was associated with greater utility (coef: 0.84, 95% CI: 0.67, 1.01).

The confidence intervals on hours of home care (coef: -0.04, 95% CI: -0.20, 0.13) implied that respondents did not have a preference about hours of home care. Likewise, respondents did not have a preference for rotation of staff members (coef: 0.02, 95% CI: -0.02, 0.06). Participants preferred having culturally adapted care over not having it (coef: 0.06, 95% CI: 0.01, 0.10). The greater the wait-time (coef: -0.12, 95% CI: -0.17, -0.06) or price of care (coef: -0.21, 95% CI: -0.23, -0.19), the lower was the utility. Focusing on long-term care homes, participants got greater utility from private rooms (coef: 0.27, 95% CI: 0.17, 0.37) but lower utility from semi-private rooms (coef: -0.14, 95% CI: -0.24, -0.03), compared to standard bedrooms. Shorter distance between long-term care home and family (distance of 20 to 30 minutes) was preferred over having longer distance of 1 to 1.5 hours (coef: 0.12, 95% CI: 0.05, 0.19).

4.3.3.3 Willingness-to-pay

Results showed that participants were willing to pay $4017 per month (95% CI: 3120, 4914) more for home care than long-term care, when all the attributes were set at the baseline (Table 3). This means that if a person is using home care for five years, they would be willing to pay $241,020 ($4017 per month x 12 months x 5 years). Similar calculations could be done for each attribute.

They were willing to pay $82 (95% CI: -114, 278) and $277 (95% CI: 73, 480) more per month for greater rotation of staff and culturally adapted care, respectively. To avoid every additional month of wait time, they were willing to pay $46 (95% CI: 24, 68) per month for every month that they were using elderly care services. With respect to long-term care, participants were willing to pay $1309 (95% CI: 809, 1810) per month more for private room and $650 less for semi-private room (95% CI: 130, 1171) compared to standard room. They were also willing to pay $575 (95% CI: 223, 928) more per month for having short distance between long-term care home and family and/or friends.

4.3.3.4 Stratified analyses

Stratifying the results by immigrant status generally showed there to be a minimal to no difference in effect sizes between immigrants and non-immigrants. Looking at the few differences between the two groups, it appeared that standard rooms were preferred more by non-immigrants (WTP: $842, 95% CI: 212, 1472) than immigrants (WTP: $372, 95% CI: -525,1270). The effect was statistically significant among non-immigrants, but given that the confidence intervals overlap, it

cannot be said that the effect in non-immigrants was statistically different than immigrants'. On the other hand, private rooms were preferred more by immigrants (for immigrants WTP: $2029, 95% CI:1154, 2903; for non-immigrants WTP: $865, 95% CI: 252, 1478). Immigrants also had greater utility for shorter distance to family and friends (WTP: $790, 95% CI: 187, 1393) compared to greater distance than non-immigrants did (WTP: $436, 95% CI: 6, 867).

Stratifying the results by sex showed a few differences between males' and females' preferences. Compared to males, females showed greater utility for home care than long-term care homes (females WTP: $4483; 95% CI: 3092, 5874; males WTP: $3645, 95% CI: 2471, 4818). Within long-term care homes, compared to females, males showed greater utility toward private rooms (females WTP: $1299, 95% CI: 494, 2103; males WTP: $1350, 95% CI: 713, 1987) and lower utility toward semi-private rooms (females WTP: -$450, 95% CI:-1289, 389; males WTP: -$828, 95% CI: -1486, -171). Lastly, compared to males, females showed lower utility for longer-wait times (females WTP: -$75, 95% CI: -109, -41; males WTP: -$26, 95% CI: -55, 4) and greater utility for a shorter distance to family and friends when living in a long-term care home (females WTP: $911, 95% CI: 334, 1488; males WTP: $299, 95% CI: -143, 741).

4.3.3.5 Robustness tests

The majority of the participants responded to the dominant choice set appropriately in that they selected Program B (n=814/875, 93%) which was clearly the dominant choice. As a robustness check, I ran the regression with and without individuals who incorrectly selected Program A. Along with the dominance test, I also tested participants' attention via other questions. When asked "what medical condition are you told you have in the hypothetical scenario", 577 (66%) participants correctly answered dementia, while 147 (17%), 86 (10%), and 65 (7%) participants incorrectly reported diabetes, cardiovascular disease, and hip fracture, respectively. The majority passed the "age test" (n=1050, 99%) in which participants were asked about their age using two separate questions. Moreover, when asked how clear the choice sets were, 668 (63%) and 295 (28%) said they were completely clear or mostly clear, respectively. Lastly, I assessed the time to complete the survey and used the results as an indicator of whether they were paying attention. The average time to complete was 16 minutes. I ran the regression without the quickest participants, who were defined as those who were in the 5% percentile and completed the survey in five minutes or less as a robustness test.

Results from the analyses in which individuals who failed either one or all the validity and reliability tests were removed are presented in Tables 4 and 5. Dropping individuals who completed the survey too quickly, got the dominance question incorrect, failed the concept question (i.e., the dementia question), failed the repetition test, or failed all these tests did not change the direction of the effects for home care, private room, care team, wait time, or price. While the direction did not change for semi-private room, culturally adapted care, and distance to family when these individuals were dropped, the statistical significance of the effects were lost. Preference for hours of home care seemed to be the most sensitive to who was dropped from the analysis. Dropping the quickest participants, those who failed the concept question, or those who failed any of the tests, changed the direction of the coefficient from negative to positive, implying that when these individuals were dropped, results showed that more hours of care were preferred. However, these effects continued to be statistically not significant.

Focusing on the tests in which coefficients and statistical significance of estimates changed, participants were willing to pay less for home care than initially estimated, but the effect was still large and ranged from $2788 (when dropping all those who failed any of the tests) to $3805 (when dropping only the quickest participants). Likewise, within the full sample, participants were willing to pay $650 (95% CI: -1171, -129) less for semi-private room in a long-term care home than standard room and $575 (95% CI: 223, 928) more to be located at 20 to 30 minutes from their family and friends compared to 1 to 1.5 hours away, but these values dropped to $339 (95% CI: -944, 265) and $405 (95% CI: -49, 860) when individuals who failed the concept question were dropped and to $310 (95% CI: -915, 296) and $531 (95% CI: 56, 1006) when individuals who failed any of the tests were dropped. Again, the results did not change drastically with these robustness tests.

Furthermore, results showed that participants were willing to pay more for a private room when the sample was restricted to those who passed the concept question ($1663, 95% CI:1030, 2295) or all the tests ($1719, 95% CI: 1069, 2368) than initially estimated with the full sample ($1309, 95% CI: 809, 1810). Furthermore, while participants were willing to pay $37 less for every additional hour of care when results from the full sample were analyzed, results showed that participants were willing to pay $78 (95% CI: -100, 256) more when those who failed the concept question were dropped. Robustness tests did not greatly change the willingness-to-pay estimates for wait time.

4.3.3.6 Predicted Probability Analysis

Calculating predicted probabilities for a scenario with the best home care option and the worst long-term care options available, the probability of choosing home care was 0.86 (95% CI: 0.83, 0.89) and 0.14 (95% CI: 0.11, 0.17) was the corresponding value for LTC (Figure 1). When the options were reversed with the best long-term care but the worst home care options available, the probability of selecting long-term care was higher at 0.80 (95% CI: 0.76, 0.84). When both alternatives had the best characteristics, the probability of choosing home care was 0.63 (95% CI: 0.56, 0.67) while the probability of choosing long-term care was 0.37 (95% CI: 0.33, 0.41). On the other hand, when both home care and long-term care had the worst characteristics, there was no significant difference in probabilities with the probability at 0.48 (95% CI: 0.43, 0.53) for choosing home care and at 0.52 (95% CI: 0.47, 0.57) for long-term care.

4.4 Discussion

4.4.1 Summary of findings and comparison to previous literature

This study explored older adults' preferences between home care and long-term care, as well as their valuation of certain characteristics of care settings, focusing on (1) room type (2) hours of care (3) culturally adapted care (4) wait-time (5) regular care providers (6) distance to family and friends and (7) monthly cost. With a growing diverse population in Ontario, and research showing unmet needs among vulnerable populations, this study not only presented preferences of community-dwelling older adults, but also explored heterogeneity in preferences by immigrant status and sex (Quach et al. 2021; Um and Lightman 2017; Um and Lightman 2016). Also,

understanding the current demand for both home care and long-term care reform in quality, this study went further and predicted the probability of choosing home care over long-term care, and vice versa, when home care and long-term care homes were designed to be at their best or worst.

Results showed that participants greatly preferred home care over long-term care in that they were willing to pay $4017 more per month for equivalent home care than long-term care, while holding other attributes constant. These results were statistically significant and consistent across stratified analyses, although females and immigrants showed a stronger preference for home care over long-term care than males and non-immigrants, respectively. Moreover, participants showed the greatest utility for home care when they were forced to make trade-offs between the different attributes, depicting that setting highly influenced choice. These results aligned with previous discrete choice experiments (Dixon et al. 2015; Finkelstein et al. 2015; Lehnert et al. 2018). For instance, Dixon et al. (2015) who studied choice of service configuration among United Kingdom residents found location of care to be the most important attribute determining preferences with home care being the most preferred (Dixon et al. 2015). In fact, a systematic review on preferences for long-term care stated that setting was one of the most important aspects of decision-making for care arrangements (Lehnert et al. 2018). Furthermore, the results also aligned with recent surveys that showed that Ontarians prefer aging at home (Ontario 2020, 2021). It is understandable that community dwellers do not want to move into a long-term care home when they age, while leaving their lives in the community behind. The problems associated with long-term care homes have been largely communicated in the media throughout the Covid-19 pandemic, and could have been at the forefront of participants' minds when participating in the survey. That being said, preference for home care was prevalent even before the pandemic (Brynaert Brennan et Associé.e.s 2014; Johnson et al. 2018; Lehnert et al. 2018).

Predicted probability analysis showed that when home care and long-term care options were designed to be both at their best, the probability of choosing home care was 0.63 while the probability of choosing long-term care was 0.37. On the other hand, when both home care and long-term care had the worst characteristics, the difference in probabilities was not large (home care: 0.48; LTC: 0.52). This goes to show that while home care was more preferred than long-term care, the preference for long-term care was also higher than anticipated given previous surveys. For example, a survey conducted in 2020 in Ontario reported that 91% of senior respondents wanted to age at home while 0% intended to move into a long-term care home (Campaign Research 2020). The difference in elicited preferences could be because of the design of the surveys. While the previous survey asked a single question on where participants wanted to age, this survey used a discrete-choice-experiment design that forced participants to make trade-offs between different care characteristics when making their decision. This study also asked participants to base their choices off of the hypothetical scenario that depicted that they are older, have dementia, and need support. In doing so, it revealed that in certain situations, long-term care may also be preferred.

Interestingly, Lehnert et al. (2019) who summarized both qualitative and quantitative literature on preferences for long-term care reported that most respondents prefer care in the community, ideally at home, when care needs are not extensive (Lehnert et al. 2019). Thus, it could be that respondents saw "mild dementia" as described in this study's vignette, to be a condition that is not extensive and one that does not require formal supervision like that in long-term care homes. Also, the predicted probability results imply that quality is an important factor in determining preferences

for home care and long-term care. Rather than always preferring home care or long-term care, respondents may prefer the setting that has the highest quality. This finding also aligns with what was mentioned in the qualitative interviews. Respondents mentioned that quality is one of the largest factors influencing people's decisions on where to obtain care.

In the interviews, participants mentioned reasons for why people may prefer long-term care over home care. They shared that people who have high care needs may need to go into long-term care because their needs are not being met at home. People may also not have family members who can help support them at home or they may not want to burden them. Moreover, in the study vignette, I asked participants to imagine that they have incontinence issues. In such conditions, people may be driven toward long-term care. Future research should explore medical and social conditions that ultimately influence people to enter long-term care homes as many previous studies that have explored home care and long-term care preferences have not foreground such issues.

After the preference for home care over long-term care, the attribute that was most preferred was having a private room in a long-term care home. Not to live in a standard room, but in a private room, participants were willing to pay $1309 more per month as long as they were in a long-term care home. These results aligned with Sawamura et al. (2015) who reported that participants in Japan when told to imagine they have dementia, preferred a private room as opposed to a standard room with two to five people (Sawamura, Sano, and Nakanishi 2015). Participants high preferences for a private room, despite knowing that it was associated with a high cost, may have been influenced by the Covid-19 pandemic that resulted in widespread infection in shared spaces (Brown et al. 2021). For this same reason, it was surprising that participants preferred standard rooms over semi-private rooms. In Ontario, standard bedrooms may be shared by four or more residents while semi-private rooms have two residents. The results seen for semi-private rooms could have been because of the way semi-private rooms were described in the study ("single bedroom with a shared washroom"). Perhaps participants did not acknowledge the point that they would be sharing the room with someone else in a semi-private room. Also, stratified analysis showed that the results were mostly driven by males who significantly showed lower willingness-to-pay for semi-private rooms compared to standard rooms (WTP: -$828, 95% CI: -1486, -171). This could be because sharing a washroom may not be an issue for males.

Contrary to predictions and previous studies, participants were indifferent toward having regular care providers in their care team (coef: 0.02, 95% CI: -0.02, 0.06). Lehnert et al. (2018), on the other hand saw that respondents preferred regular caregivers (defined as 1-2 caregivers per month) over a larger number of caregivers (i.e., "3–5" and "6–8" different caregivers/month), for which they were willing to pay up to €213.86/month (Lehnert et al. 2018). Similarly, Nieboer et al. (2010) reported the willingness-to-pay for regular caregivers to range between $36 and $154 depending on the hypothetical scenario presented (Nieboer, Koolman, and Stolk 2010). Our study results were, however, similar to Sawamura et al. whom also saw that preferences for regular care staff was not significant (Sawamura, Sano, and Nakanishi 2015). It could be that participants in this study did not understand what "greater rotation of staff members" meant and misinterpreted more staff members to mean more hours. Moreover, it may also have been difficult for participants to imagine having a regular care provider as currently high staff turnover is the norm. Also, the sample consisted of "healthy" older adults around the average age of 60 who did not have much experience with the home care and long-term care systems (Table 1). As such, they may not have

realized the importance of having a regular care provider, especially when one has dementia. A common recommendation from long-term care reports, commissions, and inquiries in Canada is to increase staffing capacity and provide more direct care though (Straus et al. 2021). More research, quantitative and qualitative, thus is needed to determine reasons for why either greater or lower rotation of staff members may be preferred.

Another result that was surprising was that respondents were indifferent toward the number of hours of home care. The variable was associated with a negative coefficient implying that lower hours were preferred, but the effect was small and not statistically significant. It could be that participants may prefer other attributes more than the number of hours of care. Nieboer et al. (2010) reported in their study that although their study participants had a positive preference for four hours of extra care per week (WTP of $42 for demented patients with no partner and $26 for patients with partners), the marginal WTP for this attribute was low compared to other attributes such as coordinated care service delivery and transportation service (Nieboer, Koolman, and Stolk 2010). In the hypothetical scenario, participants were told that they would receive two hours of care for free, with the cost paid for by the government, and they would be responsible to pay for any additional hours themselves privately. In 2020, it roughly cost $40/hour for a personal support worker and $65/hour for a nurse (Closing the Gap Healthcare Group Inc. 2020). Descriptive analysis showed that 30% and 32% of participants (immigrants and non-immigrants) think that future payments for their care will be out-of-pocket or paid for by the government, respectively (Table 1). Future research can explore what respondents would prefer in terms of hours of care if government increased the number of eligible "free" hours.

Respondents preferred lower wait-times in that they were willing to pay $46 less for each additional month of wait-time, as long as they were in the program. Similarly, Sawamura et al. (2015) found that immediate occupancy was preferred over a wait time of over one year and wait-time of within one year (Sawamura, Sano, and Nakanishi 2015). The results were not surprising given that the issue of long wait-times for health care in Canada has been largely debated for quite some time now (Samuelson-Kiraly et al. 2020). Furthermore, during the Covid-19 pandemic, the media had highlighted the long wait times in both the long-term care and home care systems in Ontario. One report indicated the average wait time for a room in long-term care in the Waterloo-Wellington area was five years (Bueckert 2021). Given all this, and the fact that I elicited preferences for the case that they have dementia, preferences for lower wait time is understandable.

Shorter distance between long-term care home and family (distance of 20 to 30 minutes) was preferred more compared to greater distance of 1 to 1.5 hours (0.09). Participants were willing to pay $575 more for living in a long-term care home that was located at a shorter distance from their family and friends compared to at a greater distance. This finding is consistent with previous research (Nieboer, Koolman, and Stolk 2010; Sawamura, Sano, and Nakanishi 2015), and reveals that future clients do not want to move far away from their loved ones and prefer regular interaction with their family and friends. This is in alignment with the literature that shares that residents value opportunities for socialization (Chester et al. 2018; Nieboer, Koolman, and Stolk 2010). In fact, one of the largest issues faced by long-term care home residents in Ontario during the Covid-19 pandemic was isolation when the government decided to restrict non-residents and staff from entering long-term care facilities (Oldenburger et al. 2022). Building and running long-term care homes is costly, resulting in limited number of homes across the province and clients being forced

to move long distances. In Ontario, there are currently only 626 homes, many of which are concentrated in urban areas (Ontario Long-term Care Association 2021). Although clients are able to list up to five homes that they are interested in when applying for a long-term care home, the reality is that they end up going to the home that has the earliest availability for a bed, and a lot of the time that home is located far from their current residence. This is a particular issue for clients who live in areas with limited number of homes, want a home that caters to their religious, cultural, or language preferences, as these are fewer in number, or have special medical conditions that can only be addressed by some specific homes. This study result, thus, has implications for policies on deciding locations of long-term care homes and ensuring that homes are meeting the needs of their local geographical population so that they do not have to move far from their family and friends.

Having culturally adapted care was highly valued. The fact that non-immigrants, who were mainly of White ethnicity, preferred culturally adapted care could be because of the growing preference for personalized care. Nieboer et al. (2010) in their study showed that participants preferred receiving care according to their individual preferences as opposed to standardized care (Nieboer, Koolman, and Stolk 2010). Surprisingly, stratified analysis showed that immigrants were indifferent toward having culturally adapted care. This may imply that immigrants show greater preference for other attributes of care. Given that lack of culturally adapted care can impede access and engagement with services, it is critical that immigrants' preferences for culturally adapted care is explored further.

Immigrants showed a greater preference for home care than long-term care compared to non-immigrants, as evidenced by a higher willingness-to-pay. They also preferred shorter distance to family and friends more than non-immigrants. These results imply that immigrants do not want to leave their lives to move into a long-term care home. Although immigrant-focused studies have been limited, several ethnicity-focused studies have reported that racial/minority individuals were less likely to use nursing homes and preferred home care services compared to White individuals (Bradley et al. 2004; Wolff, Kasper, and Shore 2008). The preference for home care could also be an extension for preference for informal care and being near family and friends (Min and Barrio 2009). Home care and long-term care policies are moving toward personalized care that address equity, diversity, and inclusion (EDI) considerations. To date, use of home care and long-term care has been low among senior immigrants given their low population and the barriers they face (Laher 2017; Um and Lightman 2017; S. Um and Lightman 2016). In order to ensure high-quality care with positive patient experiences, policies should consider the preferences of immigrants.

4.4.2 Limitations and Strengths

Limitations of the study must be mentioned. First, the study sample was recruited from a polling company while knowing that people who willingly register and complete surveys for polling companies are different from the general population, limiting the generalizability of the study results and implications. However, sampling from a polling firm was inevitable given the current Covid-19 pandemic in which it became difficult to conduct in-person surveys, especially with older adults. Also, Leger, is one of Canada's largest survey sites that has a diverse group of members, as evidenced by the sample in this study. Using a large panel also allowed a large sample size. Similar panels have been utilized recently. For instance, they have been used by HEC Montreal to explore preferences for long-term care insurance and the University of British

Columbia to investigate women's perspectives on mammography screening (Abelson et al. 2018; Boyer et al. 2017).

Second, the study results cannot be generalized to all given that the population in this study sample was generally healthy and did not have experiences with home care and/or long-term care. Preferences among those who have had such experiences can differ. For instance, immigrants who have had experience with family members with dementia in long-term care homes may show greater utility toward having a regular caregiver and culturally adapted care than was seen in this study.

Third, due to the need for a labelled and uncomplex design, the study focused on two alternatives and ignored other available options (e.g., retirement homes). Nevertheless, an initial rapid review and qualitative interviews suggested that retirement homes is currently an unrealistic option for several immigrant older adults. Fourth, the results seen were specific to the scenario that was presented to the participants (i.e., 80-year-old with mild dementia). Results may have been different if the hypothetical person a had hip fracture, for example. As such, the results and implications of the study are not generalizable to all situations.

Fifth, some individuals have critiqued discrete choice experiment methods and stated preference methods more broadly and articulated that they have lower external validity because they are based on hypothetical choices. They suggest that there may be discrepancies between the preferences elicited in discrete choice experiments and those seen in reality. This group suggests that revealed preference methods should be used instead (Bridges et al. 2011). However, Quaife et al. (2018) who conducted a systematic review and meta-analysis examining the external validity of discrete choice experiments reported that discrete choice experiments can produce "reasonable predictions of health-related behaviours" if designed well (Quaife et al. 2018).

Lastly, I excluded individuals who had household income of less than $24,999 as low-income individuals receive government subsidy in Ontario to help cover the cost of accommodation in long-term care homes (Ontario Ministry of Health 2022). This amount equates to the cost of a standard room and as such, low-income individuals who are receiving government support do not get the choice of selecting a semi-private or private room. Excluding these individuals ensured that the eligible participants were able to make trade-offs between all attributes. Hence, while improving internal validity, the exclusion of low-income individuals reduced the generalizability of the results of this study to individuals with annual household income above the $25,000 threshold. This group makes up the majority of the population in Ontario, however (Statistics Canada 2021).

In this study, preferences from community members were elicited, and not patients as done previously (Lehnert et al. 2018). Although patients are aware of the home care and long-term care systems to be able to make informed decisions and are aware of their own medical and social needs, focusing on community members has its strengths. For instance, patients may have had difficulties in imagining a future state for home care and long-term care without being biased by the "status quo" and their present and past experiences. Such a bias does not affect future users. Instead, I was able to learn of preferences of individuals who have minimal to no experience with home care and long-term care and their expectations. Home care and long-term care reforms being

suggested right now will have implications on these future users, and so, these results can be seen as engagement from potential users and their voices on what they prefer that can then be subsequently used for co-designing person-centred care services. Additionally, the methods used in this study allowed me to elicit preferences from a population that is infrequently surveyed, senior immigrants. This is important given that the number of senior immigrants is projected to increase and become more diverse. To my knowledge, this is the first study to compare preferences among immigrants and non-immigrants.

4.4.3 Implications for Policy and Research

As the demand for both long-term care and home care services is bound to increase with an increasing elderly population, the findings from this study have practical implications for policy. That being said, this is to our knowledge the first study to explore home care and long-term care preferences among the general public in Ontario. More research is definitely needed (with different populations and hypothetical scenarios) before any strong policy recommendations can be made. What is presented below are policy recommendations based on this study alone.

Ontario is currently undergoing a health system overhaul with the implementation of regionalized Ontario Health Teams that promise coordinated care to enrolled patients. The aim of the modernization is to provide more person-centered care and to smoothen transitions between different sectors. Since this study looked at a broad number of attributes and was able to quantify the strength of preferences using willingness-to-pay estimates, the results allow decision makers to weigh multiple change ideas at once. This study is also very timely given the pandemic and the increasing focus on how to provide care for our senior population.

More specifically, this study showed that people were willing to pay large amounts of money for their preferred care packages. For instance, if a person preferred home care with culturally adapted care, they would be willing to pay an additional $4294 per month that they are using the services. If they are expected to use these services for one year, this would equate to $51,528. For five years, it would be $257,640. This shows the high demand there is for these attributes. This has implications for supply-side policies that need to consider increasing funding to home care, making care culturally appropriate, and prioritizing home care staffing in terms of the number of professionals as well as the diversity.

Two other attributes that were highly preferred were having a private room and living in a long-term care home that is at a 20 to 30 minutes distance from family/friends as opposed to standard room and distance of 1 to 1.5 hours, respectively. This has implications for long-term care policies. Long-term care homes in development can consider increasing the number of private rooms relative to other types of rooms. Increasing number of private rooms not only increases residents' privacy but has benefits to improve safety and care. For the long-term care system, it may imply that beds in standard rooms are unoccupied, causing inefficiencies. This could affect the revenue of homes as well, which in turn will have other implications (i.e., reducing revenue will cause owners to reduce number of staff members which will impact care).

Respondents preferring to live close to their family and friends is currently a difficult preference to meet since there are limited homes and beds, especially in certain geographical areas. If this

preference overlaps with others such as presence of culturally adapted care, it becomes even more difficult to meet. People in Ontario currently have the option of listing up to five homes in their long-term care home application. If they choose all homes that are in their family's geographic area and that area has long waiting times, this can result in people overstaying in hospitals or living at home without appropriate care. Very recently, the Ontario government passed a controversial bill that allows hospitals to discharge patients to homes not of their choosing temporarily (Balintic 2022). Critics are highlighting that this policy may remove people's preferences (Balintic 2022). A better solution to addressing inefficiencies in the system may be to increase the number of homes that can be listed in the application.

Furthermore, using simulation exercises, the study showed that people will demand high-quality care. This finding was in alignment with the qualitative research which also showed that quality was an important factor that people considered when selecting a care setting. This suggests that Ontario Health could continue to sustain and support quality improvement across home care services and long-term care homes (Health Quality Ontario 2012; Wilkinson et al. 2019). Also, organizations could ensure that quality improvement is embedded within their work.

As mentioned before, given the novelty of this study, the findings definitely need to be verified in future studies. Also, future preference studies need to explore heterogeneity in preferences across subgroups who differ by country of origin, ethnicity, and/or income status. The results can be compared with the status quo and inform future policies and ensure that they are equitable. The experiment tool can also be tested and used among other vulnerable groups. It would be interesting to also explore preferences of caregivers, family members and health professionals as well given that decisions are often not made by patients themselves. It would also help evaluate the alignment in preferences as well as the decision-making ability of caregivers and family members.

Lastly, although the study was comprehensive and relevant to future patients and the policy context, I was only able to study a handful of attributes and research questions. Future studies should investigate preferences for features of home care and long-term care financing, as the costs will continue to rise. Studies should also explore how preferences may differ depending on context provided whether that is a type of illness or social condition (e.g., married or not) by providing varying hypothetical scenarios (Statistics Canada 2021). Also, future studies can focus solely on home care or long-term care and not be restricted to certain attributes and levels as we were. That way, one can also know values placed on attributes within particular settings (e.g., culturally adapted home care). Also, it would address situations when home care and long-term care are not substitutes, and people do not have a choice between the two. For instance, when an individual's needs are high, home care is sometimes not a viable option, and a person is forced to go into a long-term care home. Addressing these subsequent research questions would provide an even deeper understanding of preferences for elder care in Ontario, helping to build a stronger foundation for evidence-informed decision-making.

4.5 References

Abelson, Julia et al. 2018. "Uncertain Times: A Survey of Canadian Women's Perspectives toward Mammography Screening." *Preventive Medicine* 112(April): 209–15. https://doi.org/10.1016/j.ypmed.2018.04.021.

Ahmad, Farah et al. 2016. "Burden of Common Mental Disorders in a Community Health Centre Sample." *Canadian Family Physician* 62(12): e758–66.

Akiva, Moshe Ben, Daniel McFadden, and Kenneth Train. 2019. "Foundations of Stated Preference Elicitation: Consumer Behavior and Choice Based Conjoint Analysis." *Foundations and Trends in Econometrics* 10(1–2): 1–144.

Akresh, Ilana Redstone. 2006. "Occupational Mobility among Legal Immigrants to the United States." *International Migration Review* 40(4): 854–84.

Alam, Khurshid, and Ajay Mahal. 2014. "Economic Impacts of Health Shocks on Households in Low and Middle Income Countries: A Review of the Literature." *Globalization and Health* 10(1).

Alegría, Margarita, Kristine M. Molina, and Chih Nan Chen. 2014. "Neighborhood Characteristics and Differential Risk for Depressive and Anxiety Disorders across Racial/Ethnic Groups in the United States." *Depression and Anxiety* 31(1): 27–37.

Alexandre, Pierre Kébreau et al. 2008. "Predictors of Outpatient Mental Health Service Use by American Youth." *Psychological Services* 5(3): 251–61.

Althubaiti, Alaa. 2016. "Information Bias in Health Research: Definition, Pitfalls, and Adjustment Methods." *Journal of Multidisciplinary Healthcare* 9: 211–17.

American Psychiatric Association. 2013. "Diagnostic and Statistical Manual of Mental Disorders." https://psychiatryonline.org/doi/book/10.1176/appi.books.9780890425596 (June 14, 2022).

Anderson, Bridget, and Scott Blinder. 2019. "Who Counts as a Migrant? Definitions and Their Consequences." *The Migration Observatory*. https://migrationobservatory.ox.ac.uk/resources/briefings/who-counts-as-a-migrant-definitions-and-their-consequences/ (August 27, 2022).

Anderson, J G. 1973. "Health Services Utilization: Framework and Review." *Health services research* 8(3): 184–99. http://www.ncbi.nlm.nih.gov/pubmed/4593850%0Ahttp://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=PMC1071757.

Arango, Celso et al. 2021. "Risk and Protective Factors for Mental Disorders beyond Genetics: An Evidence-Based Atlas." *World Psychiatry* 20(3): 417–36.

Arya, Akshaya Neil, and Thomas Piggott. 2018. *Under-Served: Health Determinants of Indigineous, Inner-City, and Migrnt Populations in Canada*. ed. Canadian Scholars. Toronto.

Aryal, Komal et al. 2021. "Nursing Home Resident Admission Characteristics and Potentially Preventable Emergency Department Transfers." *Journal of the American Medical Directors Association*. https://doi.org/10.1016/j.jamda.2021.11.020.

Axelrad, Hila, Erika L. Sabbath, and Summer Sherburne Hawkins. 2018. "The 2008–2009 Great Recession and Employment Outcomes among Older Workers." *European Journal of Ageing* 15(1): 35–45.

Baek, Kelly et al. 2021. "Factors Influencing Formal and Informal Resource Utilization for Mental Distress Among Korean Americans in Southern California." *Journal of Immigrant and Minority Health* 23(3): 528–35. https://doi.org/10.1007/s10903-020-01050-1.

Bailey, Rahn Kennedy, Holly L. Blackmon, and Francis L. Stevens. 2009. "Major Depressive Disorder in the African American Population: Meeting the Challenges of Stigma, Misdiagnosis, and Treatment Disparities." *Journal of the National Medical Association* 101(11): 1084–89.

Balintic, Vanessa. 2022. "Advocates, Critics Warn Ontario's Planned Changes to Long-Term Care Are a Violation of Patient Rights." *CBC News*.

Barnes, Steve. 2016. *Health Care Access for the Uninsured in Ontario Symposium Report*. https://www.wellesleyinstitute.com/wp-content/uploads/2017/01/Health-Care-Access-for-the-Uninsured-Symposium-Report.pdf.

Baroud, Evelyne et al. 2019. "Suicidality among Lebanese Adolescents: Prevalence, Predictors and Service Utilization." *Psychiatry Research* 275(March 2019): 338–44. https://doi.org/10.1016/j.psychres.2019.03.033.

Barwick, Melanie et al. 2013. "Profiles and Service Utilization for Children Accessing a Mental Health Walk-In Clinic versus Usual Care." *Journal of Evidence-Based Social Work* 10(4): 338–52.

Bauer, Greta R. et al. 2021. "Intersectionality in Quantitative Research: A Systematic Review of Its Emergence and Applications of Theory and Methods." *SSM - Population Health* 14(April): 100798. https://doi.org/10.1016/j.ssmph.2021.100798.

Beiser, Morton. 2005. "The Health of Immigrants and Refugees in Canada." *Canadian Journal of Public Health* 96(SUPPL. 2).

———. 2010. "Predictors of Emotional Problems and Physical Aggression among Children of Hong Kong Chinese, Mainland Chinese and Filipino Immigrants to Canada." *Social Psychiatry and Psychiatric Epidemiology* 45(10): 1011–21.

———. 2011. "Regional Effects on the Mental Health of Immigrant Children: Results from the New Canadian Children and Youth Study (NCCYS)." *Health and Place* 17(3): 822–29. http://dx.doi.org/10.1016/j.healthplace.2011.03.005.

———. 2014. "Predictors of Immigrant Children's Mental Health in Canada: Selection, Settlement Contingencies, Culture, or All of the Above?" *Social Psychiatry and Psychiatric Epidemiology* 49(5): 743–56.

Beiser, Morton, and Feng Hou. 2016. "Mental Health Effects of Premigration Trauma and Postmigration Discrimination on Refugee Youth in Canada." *Journal of Nervous and Mental Disease* 204(6): 464–70.

Beiser, Morton, Feng Hou, Ilene Hyman, and Michel Tousignant. 2002. "Poverty, Family Process, and the Mental Health of Immigrant Children in Canada." *American Journal of Public Health* 92(2): 220–27.

de Bekker-Grob, Esther W. et al. 2019. "Are Healthcare Choices Predictable? The Impact of Discrete Choice Experiment Designs and Models." *Value in Health* 22(9).

de Bekker-Grob, Esther W., Bas Donkers, Marcel F. Jonker, and Elly A. Stolk. 2015. "Sample Size Requirements for Discrete-Choice Experiments in Healthcare: A Practical Guide." *Patient* 8(5): 373–84.

Belhadj Kouider, Esmahan, Ute Koglin, and Franz Petermann. 2015. "Emotional and Behavioral Problems in Migrant Children and Adolescents in American Countries: A Systematic Review." *Journal of Immigrant and Minority Health* 17(4): 1240–58. http://dx.doi.org/10.1007/s10903-014-0039-2.

Blakely, Tony et al. 2021. "Disease-Related Income and Economic Productivity Loss in New Zealand: A Longitudinal Analysis of Linked Individual-Level Data." *PLoS Medicine* 18(11): 1–19. http://dx.doi.org/10.1371/journal.pmed.1003848.

Bonsang, Eric. 2009. "Does Informal Care from Children to Their Elderly Parents Substitute for Formal Care in Europe?" *Journal of Health Economics* 28(1): 143–54.

Botly, Leigh C.P. et al. 2020. "Recent Trends in Hospitalizations for Cardiovascular Disease,

Stroke, and Vascular Cognitive Impairment in Canada." *Canadian Journal of Cardiology* 36(7): 1081–90. https://doi.org/10.1016/j.cjca.2020.03.007.

Boulanger, J. M. et al. 2018. "Canadian Stroke Best Practice Recommendations for Acute Stroke Management: Prehospital, Emergency Department, and Acute Inpatient Stroke Care, 6th Edition, Update 2018." *International Journal of Stroke* 13(9): 949–84.

Boyer, Martin et al. 2017. *Long-Term Care Insurance: Knowledge Barriers, Risk Perception and Adverse Selection*. Montreal.

Boyle, Michael H., Katholiki Georgiades, Laura Duncan, Li Wang, et al. 2019. "Poverty, Neighbourhood Antisocial Behaviour, and Children's Mental Health Problems: Findings from the 2014 Ontario Child Health Study." *Canadian Journal of Psychiatry* 64(4): 285–93.

Boyle, Michael H., Katholiki Georgiades, Laura Duncan, Jinette Comeau, et al. 2019. "The 2014 Ontario Child Health Study—Methodology." *Canadian Journal of Psychiatry* 64(4): 237–45.

Boyle, Michael H., Laura Duncan, et al. 2019. "The 2014 Ontario Child Health Study Emotional Behavioural Scales (OCHS-EBS) Part II: Psychometric Adequacy for Categorical Measurement of Selected DSM-5 Disorders." *Canadian Journal of Psychiatry* 64(6): 434–42.

Bradley, Cathy J., David Neumark, and Scott Barkowski. 2013. "Does Employer-Provided Health Insurance Constrain Labor Supply Adjustments to Health Shocks? New Evidence on Women Diagnosed with Breast Cancer." *Journal of Health Economics* 32(5): 833–49. http://dx.doi.org/10.1016/j.jhealeco.2013.06.008.

Bradley, Cathy J., David Neumark, Heather L. Bednarek, and Maryjean Schenk. 2005. "Short-Term Effects of Breast Cancer on Labor Market Attachment: Results from a Longitudinal Study." *Journal of Health Economics* 24(1): 137–60.

Bradley, Elizabeth H. et al. 2004. "Intended Use of Informal Long-Term Care: The Role of Race and Ethnicity." *Ethnicity and Health* 9(1): 37–54.

Brau, R, and LR Bruni. 2008. "Eliciting the Demand for Long-Term Care Coverage: A Discrete Choice Modelling Analysis." *Health Economics* 1131(2007): 1127–31.

Bridges, John F.P. et al. 2011. "Conjoint Analysis Applications in Health - A Checklist: A Report of the ISPOR Good Research Practices for Conjoint Analysis Task Force." *Value in Health* 14(4): 403–13. http://dx.doi.org/10.1016/j.jval.2010.11.013.

Brown, Kevin A. et al. 2021. "Association between Nursing Home Crowding and COVID-19 Infection and Mortality in Ontario, Canada." *JAMA Internal Medicine* 181(2): 229–36.

Brynaert Brennan et Associé.e.s. 2014. *Report on Service and Housing Needs of Francophone Seniors*. Erie St. Clair/South West.

Bueckert, Kate. 2021. "More Beds Coming as System Tackles 5-Year Wait Lists for Long-Term Care."

Campaign Research. 2020. *Home Care Ontario Study*.

Canada, Public Health Agency of. 2022. "COVID-19 Epidemiology Update."

Canada, Statistics. 2021. "Census Profile, 2021 Census of Population Profile Table." https://www12.statcan.gc.ca/census-recensement/2021/dp-pd/prof/details/page.cfm?Lang=E&SearchText=Ontario&DGUIDlist=2021A000235&GENDERlist=1,2,3&STATISTIClist=1&HEADERlist=0 (August 12, 2022).

Canadian Institute for Health Information. 2021. *The Impact of COVID-19 on Long-Term Care in Canada: Focus on the First 6 Months*. http://www.scie-socialcareonline.org.uk/the-impact-of-covid-19-on-long-term-care-in-canada-focus-on-the-first-6-

months/r/a116f00000UuXxWAAV.
Capatina, Elena, Michael P. Keane, and Shiko Maruyama. 2018. "Health Shocks and the Evolution of Consumption and Income over the Life-Cycle." *SSRN Electronic Journal*.
Casey, Liam. 2021. "Ontario Home Care Sector Reports Mass Exodus of Healthcare Workers Moving to Hospitals, Long-Term Care Homes." *The Canadian Press*.
———. "'A Crisis for Home Care': Droves of Workers Leave for Hospitals, Nursing Homes." https://www.cbc.ca/news/canada/toronto/ont-home-care-1.6232042 (August 12, 2022).
Castañeda, Heide et al. 2015. "Immigration as a Social Determinant of Health." *Annual Review of Public Health* 36: 375–92.
Cervantes, Richard C., Karina A. Gattamorta, and Jodi Berger-Cardoso. 2019. "Examining Difference in Immigration Stress, Acculturation Stress and Mental Health Outcomes in Six Hispanic/Latino Nativity and Regional Groups." *Journal of Immigrant and Minority Health* 21(1): 14–20. http://dx.doi.org/10.1007/s10903-018-0714-9.
Chadwick, Kathryn A., and Patricia A. Collins. 2015. "Examining the Relationship between Social Support Availability, Urban Center Size, and Self-Perceived Mental Health of Recent Immigrants to Canada: A Mixed-Methods Analysis." *Social Science and Medicine* 128: 220–30. http://dx.doi.org/10.1016/j.socscimed.2015.01.036.
Chang, Cindy D. 2019. "Social Determinants of Health and Health Disparities Among Immigrants and Their Children." *Current Problems in Pediatric and Adolescent Health Care* 49(1): 23–30. https://doi.org/10.1016/j.cppeds.2018.11.009.
Charles, Kerwin Kofi. 1999. "Sickness in the Family: Health Shocks and Spousal Labor Supply."
Chen, Alice W., Arminée Kazanjian, and Hubert Wong. 2009. "Why Do Chinese Canadians Not Consult Mental Health Services: HealtH Status, Language or Culture?" *Transcultural Psychiatry* 46(4): 623–41.
Chester, Helen et al. 2018. "People with Dementia and Carer Preferences for Home Support Services in Early-Stage Dementia." *Aging and Mental Health* 22(2): 270–79. https://doi.org/10.1080/13607863.2016.1247424.
Chiswick, Barry R., Yew Liang Lee, and Paul W. Miller. 2008. "Immigrant Selection Systems and Immigrant Health." *Contemporary Economic Policy* 26(4): 555–78.
Chiu, Maria, Abigail Amartey, Xuesong Wang, and Paul Kurdyak. 2018. "Ethnic Differences in Mental Health Status and Service Utilization: A Population-Based Study in Ontario, Canada." *Canadian Journal of Psychiatry* 63(7): 481–91.
Choi, Sung. 2017. "Hospital Capital Investment during the Great Recession." *Inquiry (United States)* 54.
Choi, Sung W., Christal Ramos, Kyungha Kim, and Shahinshah Faisal Azim. 2019. "The Association of Racial and Ethnic Social Networks with Mental Health Service Utilization Across Minority Groups in the USA." *Journal of Racial and Ethnic Health Disparities* 6(4): 836–50.
Chow, Julian Chun Chung, Kim Jaffee, and Lonnie Snowden. 2003. "Racial/Ethnic Disparities in the Use of Mental Health Services in Poverty Areas." *American Journal of Public Health* 93(5): 792–97.
Chu, Leung Wing et al. 2014. "Community End-of-Life Care among Chinese Older Adults Living in Nursing Homes." *Geriatrics and Gerontology International* 14(2): 273–84.
Closing the Gap Healthcare Group Inc. 2020. "Home Care Costs in Ontario—A Complete Breakdown." https://www.closingthegap.ca/home-care-costs-in-ontario-a-complete-

breakdown/.
Cloutier, Denise S. et al. 2019. "Long-Term Care Service Trajectories and Their Predictors for Persons Living With Dementia: Results From a Canadian Study." *Journal of Aging and Health* 31(1): 139–64.
Cohen, Sheldon, and Thomas Ashby Wills. 1985. "Stress, Social Support, and the Buffering Hypothesis." *Psychological Bulletin* 98(2): 310–57.
Colizzi, Marco, Antonio Lasalvia, and Mirella Ruggeri. 2020. "Prevention and Early Intervention in Youth Mental Health: Is It Time for a Multidisciplinary and Trans-Diagnostic Model for Care?" *International Journal of Mental Health Systems* 14(1): 1–14. https://doi.org/10.1186/s13033-020-00356-9.
Constant, Amelie F., Teresa García-Muñoz, Shoshana Neuman, and Tzahi Neuman. 2018. "A 'Healthy Immigrant Effect' or a 'Sick Immigrant Effect'? Selection and Policies Matter." *European Journal of Health Economics* 19(1): 103–21.
Copeland, William E., Lilly Shanahan, E. Jane Costello, and Adrian Angold. 2009. "Childhood and Adolescent Psychiatric Disorders as Predictors of Young Adult Disorders." *Archives of General Psychiatry* 66(7): 764–72.
Cost, Katherine Tombeau et al. 2022. "Mostly Worse, Occasionally Better: Impact of COVID-19 Pandemic on the Mental Health of Canadian Children and Adolescents." *European Child and Adolescent Psychiatry* 31(4): 671–84. https://doi.org/10.1007/s00787-021-01744-3.
Crossman, Eden, Feng Hou, and Garnett Picot. 2021. "Are the Gaps in Labour Market Outcomes between Immigrants and Their Canadian-Born Counterparts Starting to Close ?" *Statistics Canada* (36).
Currie, J, and BC Madrian. 1999. "Health, Health Insurance and the Labor Market." In *Handbook of Labor Economics*, eds. O Ashenfelter and D Card. Amsterdam, 3309–3407.
Cutrona, Carolyn E., Gail Wallace, and Kristin A. Wesner. 2006. "Neighborhood Characteristics and Depression an Examination of Stress Processes." *Current Directions in Psychological Science* 15(4): 188–92.
Dano, Anne Moller. 2005. "Road Injuries and Long-Run Effects on Income and Employment." *Health Economics* 14(9): 955–70.
Danso, Kofi. 2016. "Nativity and Health Disparities: Predictors of Immigrant Health." *Social Work in Public Health* 31(3): 175–87.
Das-Munshi, Jayati et al. 2019. "Ethnic Density and Other Neighbourhood Associations for Mortality in Severe Mental Illness: A Retrospective Cohort Study with Multi-Level Analysis from an Urbanised and Ethnically Diverse Location in the UK." *The Lancet Psychiatry* 6(6): 506–17.
David Naylor, C., Andrew Boozary, and Owen Adams. 2020. "Canadian Federal-Provincial/Territorial Funding of Universal Health Care: Fraught History, Uncertain Future." *Cmaj* 192(45): E1408–12.
Delavande, Adeline, and Charles F Manski. 2015. "Using Elicited Choice Probabilities in Hypothetical Elections to Study Decisions to Vote." *Elect Stud*: 28–37.
Derose, Kathryn Pitkin, José J. Escarce, and Nicole Lurie. 2007. "Immigrants and Health Care: Sources of Vulnerability." *Health Affairs* 26(5): 1258–68.
Derr, Amelia S. 2009. "Mental Health Service Use Among Immigrants in the United States: A Systematic Review Dr." 6(2): 356–72.
Dhanaraj, Sowmya. 2016. "Economic Vulnerability to Health Shocks and Coping Strategies: Evidence from Andhra Pradesh, India." *Health Policy and Planning* 31(6): 749–58.

Disney, Lindsey. 2021. "The Impact of Employment on Immigrant Mental Health: Results from a National Survey." *Social work* 66(2): 93–100.

Dixon, Simon et al. 2015. "Assessing Patient Preferences for the Delivery of Different Community-Based Models of Care Using a Discrete Choice Experiment." *Health Expectations*.

Duncan, Laura et al. 2019. "The 2014 Ontario Child Health Study Emotional Behavioural Scales (OCHS-EBS) Part I: A Checklist for Dimensional Measurement of Selected DSM-5 Disorders." *Canadian Journal of Psychiatry* 64(6): 423–33.

Durbin, Anna et al. 2015a. "Examining the Relationship between Neighbourhood Deprivation and Mental Health Service Use of Immigrants in Ontario, Canada: A Cross-Sectional Study." *BMJ Open* 5(3).

———. 2015b. "Mental Health Service Use by Recent Immigrants from Different World Regions and by Non-Immigrants in Ontario, Canada: A Cross-Sectional Study." *BMC Health Services Research* 15(1). http://dx.doi.org/10.1186/s12913-015-0995-9.

Eccles, Jacquelynne S et al. 1993. "Development during Adolescence: The Impact of Stage-Environment Fit on Young Adolescents' Experiences in Schools and in Families." *American Psychologist* 48(2): 90–101.

Edwards, Ryan D., and Jennifer Roff. 2010. "Negative Effects of Paternal Age on Children's Neurocognitive Outcomes Can Be Explained by Maternal Education and Number of Siblings." *PLoS ONE* 5(9): 1–9.

Emerson, Scott D. et al. 2022. "Neighbourhood Context and Diagnosed Mental Health Conditions among Immigrant and Non-Immigrant Youth: A Population-Based Cohort Study in British Columbia, Canada." *Social Psychiatry and Psychiatric Epidemiology* (0123456789). https://doi.org/10.1007/s00127-022-02301-2.

Essue, BM et al. 2017. "Economic Burden of Chronic Ill Health and Injuries for Households in Low- and Middle-Income Countries." In *Disease Control Priorities: Improving Health and Reducing Poverty,* eds. DT Jamison et al. Washington.

Fadlon, Itzik, and Torben Heien Nielsen. 2021. "Family Labor Supply Responses to Severe Health Shocks: Evidence from Danish Administrative Records†." *American Economic Journal: Applied Economics* 13(3): 1–30.

Fan, Jonathan K. et al. 2018. "Labor Market and Health Trajectories during Periods of Economic Recession and Expansion in the United States, 1988–2011." *Scandinavian Journal of Work, Environment and Health* 44(6): 639–46.

Filion, Nicole, Andrew Fenelon, and Michel Boudreaux. 2018. "Immigration, Citizenship, and the Mental Health of Adolescents." *PLoS ONE* 13(5): 1–12.

Finkelstein, Eric A., Marcel Bilger, Terry N. Flynn, and Chetna Malhotra. 2015. "Preferences for End-of-Life Care among Community-Dwelling Older Adults and Patients with Advanced Cancer: A Discrete Choice Experiment." *Health Policy* 119(11): 1482–89. http://dx.doi.org/10.1016/j.healthpol.2015.09.001.

Fisher, Michael P., and Mika K. Hamer. 2020. "Qualitative Methods in Health Policy and Systems Research: A Framework for Study Planning." *Qualitative Health Research* 30(12): 1899–1912.

Fletcher, Jason, and Katie M Jajtner. 2021. "Intergenerational Health Mobility: Magnitudes and Importance of Schools and Place." *Health Economics* 30(7): 1648–67.

Forder, Julien, Katerina Gousia, and Eirini Christina Saloniki. 2019. "The Impact of Long-Term Care on Primary Care Doctor Consultations for People over 75 Years." *European Journal*

of Health Economics 20(3): 375–87. http://dx.doi.org/10.1007/s10198-018-0999-6.
Franco, Yujin, and Eun Young Choi. 2020. "The Relationship Between Immigrant Status and Undiagnosed Dementia: The Role of Limited English Proficiency." *Journal of Immigrant and Minority Health* 22(5): 914–22. https://doi.org/10.1007/s10903-019-00963-w.
Frounfelker, Rochelle L et al. 2019. "Mental Health of Refugee Children and Youth: Epidemiology, Interventions, and Future Directions." : 1–18.
Fu, Rong et al. 2019. "How Do Cardiovascular Diseases Harm Labor Force Participation? Evidence of Nationally Representative Survey Data from Japan, a Super-Aged Society." *PLoS ONE* 14(7): 1–16.
Gagnon, Monica, Nisha Kansal, Ritika Goel, and Denise Gastaldo. 2021. "Immigration Status as the Foundational Determinant of Health for People Without Status in Canada: A Scoping Review." *Journal of Immigrant and Minority Health* (0123456789). https://doi.org/10.1007/s10903-021-01273-w.
Gandhi, Sima et al. 2016a. "Mental Health Service Use among Children and Youth in Ontario: Population-Based Trends over Time." *Canadian Journal of Psychiatry* 61(2): 119–24.
———. 2016b. "Mental Health Service Use among Children and Youth in Ontario: Population-Based Trends over Time." *Canadian Journal of Psychiatry* 61(2): 119–24.
Garasia, Sophiya et al. "Health Outcomes, Health Services Utilization, and Costs Consequences of Medicare Uninsurance among Migrants in Canada: A Systematic Review." *Submitted to Health Services Research*.
García-Gómez, Pilar. 2011. "Institutions, Health Shocks and Labour Market Outcomes across Europe." *Journal of Health Economics* 30(1): 200–213.
García-Gómez, Pilar, Hans van Kippersluis, Owen O'Donnell, and Eddy van Doorslaer. 2013. "Long-Term and Spillover Effects of Health Shocks on Employment and Income." *Journal of Human Resources* 48(4): 873–909.
Garland, Allan et al. 2019a. "Effects of Cardiovascular and Cerebrovascular Health Events on Work and Earnings: A Population-Based Retrospective Cohort Study." *Annals of Internal Medicine* 191(1): E3–10.
———. 2019b. "Effects of Cardiovascular and Cerebrovascular Health Events on Work and Earnings: A Population-Based Retrospective Cohort Study." *Annals of Internal Medicine* 191(1): E3–10.
Gatt, Justine M. et al. 2020. "Trauma, Resilience, and Mental Health in Migrant and Non-Migrant Youth: An International Cross-Sectional Study Across Six Countries." *Frontiers in Psychiatry* 10(March): 1–15.
Gentili, Elena, Giuliano Masiero, and Fabrizio Mazzonna. 2017. "The Role of Culture in Long-Term Care Arrangement Decisions." *Journal of Economic Behavior and Organization* 143: 186–200. https://doi.org/10.1016/j.jebo.2017.09.007.
George, M. A., and C. Bassani. 2016a. "The Health of Immigrant Children Who Live in Areas with High Immigrant Concentration." *Ethnicity and Health* 21(5): 426–38. http://dx.doi.org/10.1080/13557858.2015.1066762.
———. 2016b. "The Health of Immigrant Children Who Live in Areas with High Immigrant Concentration." *Ethnicity and Health* 21(5): 426–38. http://dx.doi.org/10.1080/13557858.2015.1066762.
George, Usha, Mary S. Thomson, Ferzana Chaze, and Sepali Guruge. 2015. "Immigrant Mental Health, a Public Health Issue: Looking Back and Moving Forward." *International Journal of Environmental Research and Public Health* 12(10): 13624–48.

Georgiades, Katholiki et al. 2019. "Six-Month Prevalence of Mental Disorders and Service Contacts among Children and Youth in Ontario: Evidence from the 2014 Ontario Child Health Study." *Canadian Journal of Psychiatry* 64(4): 246–55.

Georgiades, Katholiki, Michael H. Boyle, and Eric Duku. 2007. "Contextual Influences on Children's Mental Health and School Performance: The Moderating Effects of Family Immigrant Status." *Child Development* 78(5): 1572–91.

Georgiades, Katholiki, Michael H. Boyle, and Kelly A. Fife. 2013. "Emotional and Behavioral Problems Among Adolescent Students: The Role of Immigrant, Racial/Ethnic Congruence and Belongingness in Schools." *Journal of Youth and Adolescence* 42(9): 1473–92.

Gibbard, Robyn. 2017. "Sizing up the Challenge: Meeting the Demand for Long-Term Care in Canada." *The Conference Board of Canada* (November): 1–48. https://www.cma.ca/sites/default/files/2018-11/9228_Meeting the Demand for Long-Term Care Beds_RPT.pdf.

Government of Canada. 2014. "Government of Canada — Action for Seniors Report." https://www.canada.ca/en/employment-social-development/programs/seniors-action-report.html (August 12, 2022).

———. 2019. "Rural and Northern Immigration Pilot: About the Pilot - Canada.Ca." https://www.canada.ca/en/immigration-refugees-citizenship/services/immigrate-canada/rural-northern-immigration-pilot.html (January 15, 2020).

———. 2022a. "Atlantic Immigration Program." https://www.canada.ca/en/immigration-refugees-citizenship/services/immigrate-canada/atlantic-immigration.html (August 27, 2022).

———. 2022b. "Interim Federal Health Program: What Is Covered." https://www.canada.ca/en/immigration-refugees-citizenship/services/refugees/help-within-canada/health-care/interim-federal-health-program/coverage-summary.html (September 28, 2022).

Government of Ontario. 2022. "Protecting People's Health." https://budget.ontario.ca/2021/health.html (August 12, 2022).

Grignon, Michel, and Byron G. Spencer. 2018. "The Funding of Long-Term Care in Canada: What Do We Know, What Should We Know." *Canadian Journal on Aging* 37(2): 110–20.

Guan, Alice et al. 2020. "Neighborhood Ethnic Composition and Self-Rated Health Among Chinese and Vietnamese American Immigrants." *Journal of Immigrant and Minority Health* (0123456789). https://doi.org/10.1007/s10903-020-01041-2.

Gupta, R, and K Vijayan. 2020. "Analysis of Caregiver Burden in South Asian Families in the Dallas-Fort Worth Metropolitan Area : Insights for Social Practice Author (s): Rashmi Gupta and Vijayan K . Pillai Source : Journal of Applied Sociology , Vol . 22 , No . 2 , Special Joint Issu." 22(2): 35–54.

Gustafsson-Wright, Emily, Wendy Janssens, and Jacques Van Der Gaag. 2011. "The Inequitable Impact of Health Shocks on the Uninsured in Namibia." *Health Policy and Planning* 26(2): 142–56.

H. Krueger & Associates Inc. 2015. *Estimated Prevalence of Stroke Survivors with Disability in Canada*. https://www.canadianstroke.ca/sites/default/files/resources/Stroke-Prevalence-Report-2015-02-25.pdf.

Haan, Peter, and Michal Myck. 2009. "Dynamics of Health and Labor Market Risks." *Journal of Health Economics* 28(6): 1116–25.

Halla, Martin, and Martina Zweimüller. 2013. "The Effect of Health on Earnings: Quasi-

Experimental Evidence from Commuting Accidents." *Labour Economics* 24: 23–38.
Halsall, Tanya et al. 2019. "Trends in Mental Health System Transformation: Integrating Youth Services within the Canadian Context." *Healthcare Management Forum* 32(2): 51–55.
Hansen, Marissa C., Dahlia Fuentes, and Maria P. Aranda. 2018. "Re-Engagement into Care: The Role of Social Support on Service Use for Recurrent Episodes of Mental Health Distress Among Primary Care Patients." *Journal of Behavioral Health Services and Research* 45(1): 90–104.
Hansson, Emily K., Andrew Tuck, Steve Lurie, and Kwame McKenzie. 2012. "Rates of Mental Illness and Suicidality in Immigrant, Refugee, Ethnocultural, and Racialized Groups in Canada: A Review of the Literature." *Canadian Journal of Psychiatry* 57(2): 111–21.
Health Quality Ontario. 2012. *Quality Improvement Plans in Long-Term Care: Lessons Learned*.
Heart and Stroke Foundation. "Saving Lives | Heart and Stroke Foundation." https://www.heartandstroke.ca/what-we-do/our-impact/saving-lives (June 7, 2022).
Heinesen, Eskil, Susumu Imai, and Shiko Maruyama. 2018. "Employment, Job Skills and Occupational Mobility of Cancer Survivors." *Journal of Health Economics* 58: 151–75. https://doi.org/10.1016/j.jhealeco.2018.01.006.
Henry, Hani M. et al. 2009. "Immigrants' Continuing Bonds with Their Native Culture: AssimilatioN Analysis of Three Interviews." *Transcultural Psychiatry* 46(2): 257–84.
Hensher, David A, John M. Rose, and William H. Greene. 2005. *Applied Choice Analysis A Primer*. Cambridge: Cambridge University Press.
Home Care Ontario. "Home Care & Me | Home Care Ontario." https://www.homecareontario.ca/home-care-services/overview (February 1, 2020).
Houle, René, and Hélène Maheux. 2016. "150 Years of Immigration in Canada." *Statistics Canada*. https://www150.statcan.gc.ca/n1/pub/11-630-x/11-630-x2016006-eng.htm.
Howard, George et al. 1985. "Factors Influencing Return to Work Following Cerebral Infarction." *JAMA: The Journal of the American Medical Association* 253(2): 226–32.
Hurlburt, Michael S. et al. 2004. "Contextual Predictors of Mental Health Service Use among Children Open to Child Welfare." *Archives of General Psychiatry* 61(12): 1217–24.
Hutchison, Brian, Jean-frédéric Levesque, Erin Strumpf, and Natalie Coyle. 2015. "Primary Health Care in Canada : Systems in Motion Source : The Milbank Quarterly , Vol . 89 , No . 2 (June 2011), Pp . 256-288 Published by : Wiley on Behalf of Milbank Memorial Fund Stable URL : Http://Www.Jstor.Org/Stable/23036216 Your Use of the JSTO." 89(2): 256–88.
Imbens, Guido W. 2015. "Matching Methods in Practice: Three Examples." *Journal of Human Resources* 50(2): 373–419.
IOM UN Migration. 2020. *World Migration Report 2020*. Geneva.
Islam, A, and J Parasnis. 2017. "Heterogeneous Effects of Health Shocks in Developed Countries: Evidence from Australia." *Monash University Department of Economics*.
Islam, Farah. 2015. "Immigrating to Canada during Early Childhood Associated with Increased Risk for Mood Disorders." *Community Mental Health Journal* 51(6): 723–32. http://dx.doi.org/10.1007/s10597-015-9851-y.
Janssen, Ellen M., Deborah A. Marshall, A. Brett Hauber, and John F.P. Bridges. 2017. "Improving the Quality of Discrete-Choice Experiments in Health: How Can We Assess Validity and Reliability?" *Expert Review of Pharmacoeconomics and Outcomes Research*.
Jeon, Sung Hee et al. 2020. "Effects of Cardiovascular Health Shocks on Spouses' Work and Earnings: A National Study." *Medical Care* 58(2): 128–36.

Jeong, Ahwon et al. 2020. "Health Outcomes of Immigrants in Nursing Homes: A Population-Based Retrospective Cohort Study in Ontario, Canada." *Journal of the American Medical Directors Association* 21(6): 740-746.e5. https://doi.org/10.1016/j.jamda.2020.03.001.

Johnson, F. Reed et al. 2013. "Constructing Experimental Designs for Discrete-Choice Experiments: Report of the ISPOR Conjoint Analysis Experimental Design Good Research Practices Task Force." *Value in Health* 16(1): 3–13.

Johnson, R, and B Orme. 2003. "Getting the Most from CBC." *Sequim: Sawtooth Software Research Paper Series*.

Johnson, Reed et al. 2013. "Constructing Experimental Designs for Discrete-Choice Experiments: Report of the ISPOR Conjoint Analysis Experimental Design Good Research Practices Task Force." *Value in Health*.

Johnson, Shanthi et al. 2018. "No Place Like Home: A Systematic Review of Home Care for Older Adults in Canada." *Canadian Journal on Aging* 37(4): 400–419.

Jones, Aaron et al. 2021. "Impact of the COVID-19 Pandemic on Home Care Services Among Community-Dwelling Adults With Dementia." *Journal of the American Medical Directors Association* 22(11): 2258-2262.e1. https://doi.org/10.1016/j.jamda.2021.08.031.

Jones, Andrew M., Nigel Rice, and Francesca Zantomio. 2020. "Acute Health Shocks and Labour Market Outcomes: Evidence from the Post Crash Era." *Economics and Human Biology* 36(2020): 100811. https://doi.org/10.1016/j.ehb.2019.100811.

Kaambwa, Billingsley et al. 2015. "Investigating Consumers' and Informal Carers' Views and Preferences for Consumer Directed Care: A Discrete Choice Experiment." *Social Science and Medicine* 140: 81–94. http://dx.doi.org/10.1016/j.socscimed.2015.06.034.

Kaida, Lisa, and Monica Boyd. 2011. "Poverty Variations among the Elderly: The Roles of Income Security Policies and Family Co-Residence." *Canadian Journal on Aging* 30(1): 83–100.

Kampanellou, Eleni, Helen Chester, Linda Davies, Sue Davies, Clarissa Giebel, Jane Hughes, David Challis, Paul Clarkson, et al. 2019. "Carer Preferences for Home Support Services in Later Stage Dementia." *Aging & mental health* 23(1): 60–68. http://ovidsp.ovid.com/ovidweb.cgi?T=JS&PAGE=reference&D=prem&NEWS=N&AN=29090948.

———. 2019. "Carer Preferences for Home Support Services in Later Stage Dementia." *Aging and Mental Health* 23(1): 60–68. https://doi.org/10.1080/13607863.2017.1394441.

Ketchen, Sandra. 2021. "Ontario Seniors and Patients Will Pay the Price of the Developing Home-Care Crisis." *Toronto News*.

Kim, Daniel. 2008. "Blues from the Neighborhood? Neighborhood Characteristics and Depression." *Epidemiologic Reviews* 30(1): 101–17.

Kim, Sophia Bohun, and Yeonjung Jane Lee. 2021. "Factors Associated with Mental Health Help-Seeking Among Asian Americans: A Systematic Review." *Journal of Racial and Ethnic Health Disparities*.

Kimber, Melissa et al. 2015. "Adolescent Body Image Distortion: A Consideration of Immigrant Generational Status, Immigrant Concentration, Sex and Body Dissatisfaction." *Journal of Youth and Adolescence* 44(11): 2154–71.

Koehn, Sharon. 2009. "Negotiating Candidacy: Ethnic Minority Seniors' Access to Care." *Ageing and Society* 29(4): 585–608.

Kovaleva, Mariya, Abigail Jones, Cathy A. Maxwell, and Elizabeth M. Long. 2021. "Immigrants and Dementia: Literature Update." *Geriatric Nursing* 42(5): 1218–21.

https://doi.org/10.1016/j.gerinurse.2021.04.019.
Kuluski, Kerry, A. Paul Williams, Whitney Berta, and Audrey Laporte. 2012. "Home Care or Long-Term Care? Setting the Balance of Care in Urban and Rural Northwestern Ontario, Canada." *Health and Social Care in the Community* 20(4): 438–48.
Kwak, Kyunghwa. 2016. "An Evaluation of the Healthy Immigrant Effect with Adolescents in Canada: Examinations of Gender and Length of Residence." *Social Science and Medicine* 157: 87–95. http://dx.doi.org/10.1016/j.socscimed.2016.03.017.
Lagarde, Mylene, and Duane Blaauw. 2009. "A Review of the Application and Contribution of Discrete Choice Experiments to Inform Human Resources Policy Interventions." *Human Resources for Health* 7: 1–10.
Laher, Nazeefah. 2017. "Diversity, Aging, and Intersectionality in Ontario Home Care." (May). www.wellesleyinstitute.com.
Lai, Daniel W.L., and Shireen Surood. 2010. "Types and Factor Structure of Barriers to Utilization of Health Services among Aging South Asians in Calgary, Canada." *Canadian Journal on Aging* 29(2): 249–58.
Lancaster, K. 1966. "A New Approach to Consumer Theory Author (s): Kelvin J . Lancaster Reviewed Work (s): Source : Journal of Political Economy , Vol . 74 , No . 2 (Apr ., 1966), Pp . 132-157 Published by : The University of Chicago Press Stable URL : Http://Www.Jstor." 74(2): 132–57.
Lancsar, Emily, Denzil G. Fiebig, and Arne Risa Hole. 2017. "Discrete Choice Experiments: A Guide to Model Specification, Estimation and Software." *PharmacoEconomics*.
Lanoix, Monique. 2017. "No Longer Home Alone? Home Care and the Canada Health Act." *Health Care Analysis* 25(2): 168–89.
Lapointe-Shaw, Lauren et al. 2021. "Homebound Status among Older Adult Home Care Recipients in Ontario, Canada." *Journal of the American Geriatrics Society* (March): 1–11.
Laroche, Mireille. 2000. "Health Status and Health Services Utilization of Canada's Immigrant and Non-Immigrant Populations." *Canadian Public Policy* 26(1): 51–75.
Legislative Assembly of Ontario. 2022. "Bill 7, More Beds, Better Care Act, 2022."
Lehnert, T. et al. 2018. "Preferences for Home- and Community-Based Long-Term Care Services in Germany: A Discrete Choice Experiment." *European Journal of Health Economics*.
Lehnert, T, M Heuchert, K Hussain, and HK Konig. 2018. "Stated Preferences for Long-Term Care: A Literature Review." *Ageing and Society*.
Lehnert, Thomas, Max Heuchert, Katharina Hussain, and Hans-Helmut König. 2019. "Stated Preferences for Long-Term Care: A Literature Review."
Lenhart, Otto. 2019. "The Effects of Health Shocks on Labor Market Outcomes: Evidence from UK Panel Data." *European Journal of Health Economics* 20(1): 83–98.
Lin, Elizabeth et al. 1996. "The Use of Mental Health Services in Ontario: Epidemiologic Findings." *Canadian Journal of Psychiatry* 41(9): 572–77.
Liu, Xing. 2016. *Applied Ordinal Logistic Regression Using Stata*. Thousand Oaks: Sage.
Locker, David, John Maggirias, and Carlos Quiñonez. 2011. "Income, Dental Insurance Coverage, and Financial Barriers to Dental Care among Canadian Adults." *Journal of Public Health Dentistry* 71(4): 327–34.
Louviere, Jordan J, David A Hensher, and Joffre D Swait. 2000. *Stated Choice Methods Analysis and Application*. Cambridge: University Press.
Luce, Mary F, John W Payne, and James R Bettman. 1999. "Emotional Trade-off Difficulty and

Choice." *Journal of Marketing Research* 36(2): 143–59.
Ludwig, Jens, Greg Duncan, Lawrence K Atz, and Lisa Sanbonmatsu. 2014. "Moving to More Affluent Neighborhoods." : 1–4. macfound.org/HousingMatters.
Lundborg, Petter, NilssonMartin, and Johan Vikstrom. 2015. "Heterogeneity in the Impact of Health Shocks on Labour Outcomes: Evidence from Swedish Workers." *Oxford Economic Papers* 67(3): 715–39.
Ma, Xin. 2002. "The First Ten Years in Canada: A Multi-Level Assessment of Behavioural and Emotional Problems of Immigrant Children." *Canadian Public Policy* 28(3): 395–418.
Mackenzie, Kwame, Branka Agic, Andrew Tuck, and Michael Antwi. 2016. *The Case for Diversity : Building the Case to Improve Mental Health Services for Immigrant, Refugee, Ethno-Cultural and Racialized Populations : Report to the Mental Health Commission of Canada*. https://www.mentalhealthcommission.ca/sites/default/files/2016-10/case_for_diversity_oct_2016_eng.pdf.
Magnusson, D, and H Stattin. 1998. "Person-Context Interaction Theories." In *Handbook of Child Psychology: Vol. 1. Theoretical Models of Human Development*, New York: Wiley, 685–759.
De Maio, Fernando G. 2010. "Immigration as Pathogenic: A Systematic Review of the Health of Immigrants to Canada." *International Journal for Equity in Health* 9(1): 27. http://www.equityhealthj.com/content/9/1/27.
Manski, Charles F. 2010. "Measuring Expectations." *Society* 28(5): 244–57.
Marchildon, Gregory, and Livio Di Matteo. 2011. "Health Care Cost Drivers : The Facts, Spending and Workforce." *Canadian Institute for Health Information* (October 2011): 1–33.
Markides, Kyriakos S., and Sunshine Rote. 2019. "The Healthy Immigrant Effect and Aging in the United States and Other Western Countries." *Gerontologist* 59(2): 205–14.
Marmot, MG, AM Adelstein, and L Bulusu. 1984. "Lessons from the Study of Immigrant Mor-Tality." *The Lancet* 1(8392): 1455–57.
Martin, Danielle et al. 2018. "Canada's Universal Health-Care System: Achieving Its Potential." *The Lancet* 391(10131): 1718–35.
Martinez, William, and Antonio J. Polo. 2018. "Neighborhood Context, Family Cultural Values, and Latinx Youth Externalizing Problems." *Journal of Youth and Adolescence* 47(11): 2440–52. http://dx.doi.org/10.1007/s10964-018-0914-6.
Masuda, Akihiko, Page L. Anderson, and Joshua Edmonds. 2012. "Help-Seeking Attitudes, Mental Health Stigma, and Self-Concealment Among African American College Students." *Journal of Black Studies* 43(7): 773–86.
Maulik, Pallab, William Eaton, and Catherine Bradshaw. 2009. "The Role of Social Network and Support in Mental Health Service Use: Findings From the Baltimore ECA Study." *Psychiatric Services* 60(9).
McKenzie, Kwame. 2019. "Improving Mental Health Services for Immigrant, Racialized, Ethno-Cultural and Refugee Groups." *Healthcare Papers* 18(2): 4–9.
McLeod Macey, Jennifer, and Grace Tong. 2017. "Children and Youth Mental Health Survey: Getting Help in Ontario." : 1–23. https://www.ipsos.com/en-ca/news-polls/CMHO-children-and-youth-mental-health-ontario.
Mehmetoglu, Mehmet, and Tor Georg Jakobsen. 2002. "Multilevel Analysis." In *Applied Statistics Using Stata - A Guide for the Social Sciences*, London: SAGE Publications Ltd (E-mail: info@sagepub.co.uk), 195–224.

Mendicino, Marco E.L. 2020. *2020 Annual Report to Parliament on Immigration*. Ottawa, ON.

Menezes, N. M., K. Georgiades, and M. H. Boyle. 2011. "The Influence of Immigrant Status and Concentration on Psychiatric Disorder in Canada: A Multi-Level Analysis." *Psychological Medicine* 41(10): 2221–31. https://www.cambridge.org/core/product/identifier/S0033291711000213/type/journal_article (January 15, 2020).

Mensah, George A. et al. 2017. "Decline in Cardiovascular Mortality: Possible Causes and Implications." *Circulation Research* 120(2): 366–80.

Mentzakis, Emmanouil, Manuel García-Goñi, Ana Rita Sequeira, and Francesco Paolucci. 2019. "Equity and Efficiency Priorities within the Spanish Health System: A Discrete Choice Experiment Eliciting Stakeholders Preferences." *Health Policy and Technology* 8(1): 30–41. https://doi.org/10.1016/j.hlpt.2019.01.003.

Min, Jong W., and Concepcion Barrio. 2009. "Cultural Values and Caregiver Preference for Mexican-American and Non-Latino White Elders." *Journal of Cross-Cultural Gerontology* 24(3): 225–39.

Ministry of Health and Long-Term Care. 2019. "Become an Ontario Health Team - Health Care Professionals - MOHLTC." http://health.gov.on.ca/en/pro/programs/connectedcare/oht/default.aspx LB - UQzQ (December 3, 2020).

Mittmann, Nicole et al. 2012. "Impact of Disability Status on Ischemic Stroke Costs in Canada in the First Year." *Can J Neurol Sci* 39(6): 793–800.

Morassaei, Sara et al. 2022. "The Role of Immigrant Admission Classes on the Health and Well-Being of Immigrants and Refugees in Canada: A Scoping Review." *Journal of Immigrant and Minority Health* (0123456789). https://doi.org/10.1007/s10903-022-01352-6.

Morgan M. Rogers-Carter1 2, Juan A Varela1 2 Katherine B Gribbons1 Anne F Pierce1 Morgan T McGoey1 Maureen Ritchey1, and John P Christianson1. 2017. "Health Impacts of the Great Recession: A Critical Review." *Physiology & behavior* 176(12): 139–48.

Moullan, Yasser, and Florence Jusot. 2014. "Why Is the 'healthy Immigrant Effect' Different between European Countries?" *European Journal of Public Health* 24(SUPPL.1): 80–86.

Mueller, Richard E, and N T Khuong Truong. 2022. "Wage and Basic Skills Inequality between Immigrants by Immigration Admission Categories and Canadian Non-Immigrants." *Empirical Economics* 62(4): 1833–84. http://libaccess.mcmaster.ca/login?url=https://search.ebscohost.com/login.aspx?direct=true&db=eoh&AN=1956049&site=ehost-live&scope=site.

Munroe-Blum, Heather, Michael H. Boyle, David R. Offord, and Nicholas Kates. 1989. "IMMIGRANT CHILDREN: Psychiatric Disorder, School Performance, and Service Utilization." *American Journal of Orthopsychiatry* 59(4): 510–19.

Nascimento, Lucas R. et al. 2021. "Predictors of Return to Work after Stroke: A Prospective, Observational Cohort Study with 6 Months Follow-Up." *Disability and Rehabilitation* 43(4): 525–29.

Netten, A. et al. 2012. "Outcomes of Social Care for Adults: Developing a Preference-Weighted Measure." *Health Technology Assessment* 16(16): 1–165.

Ng, Edward. 2020. "COVID-19 Deaths among Immigrants: Evidence from the Early Months of the Pandemic." *Statistics Canada* (45280001): 1–9.

Ng, Edward, Kevin Pottie, and Denise Spitzer. 2011. "Official Language Proficiency and Selfreported Health among Immigrants to Canada." *Health Reports* 22(4).

Nieboer, Anna P., Xander Koolman, and Elly A. Stolk. 2010. "Preferences for Long-Term Care Services: Willingness to Pay Estimates Derived from a Discrete Choice Experiment." *Social Science and Medicine*.

O'Neill, Braden et al. 2022. "Socioeconomic and Immigration Status and COVID-19 Testing in Toronto, Ontario: Retrospective Cross-Sectional Study." *BMC Public Health* 22(1): 1–9. https://doi.org/10.1186/s12889-022-13388-2.

Ohle, Robert, Helena Bleeker, Krishan Yadav, and Jeffrey J. Perry. 2018. "The Immigrant Effect: Factors Impacting Use of Primary and Emergency Department Care - A Canadian Population Cross-Sectional Study." *Canadian Journal of Emergency Medicine* 20(2): 260–65.

Ojeda, Victoria D, Richard G Frank, Thomas G McGuire, and Todd P Gilmer. 2010. "Mental Illness, Nativity, Gender, and Labor Supply." 19: 396–421.

Okrainec, Karen, Chaim M. Bell, Simon Hollands, and Gillian L. Booth. 2015. "Risk of Cardiovascular Events and Mortality among a Population-Based Cohort of Immigrants and Long-Term Residents with Diabetes: Are All Immigrants Healthier and If so, for How Long?" *American Heart Journal* 170(1): 123–32. http://dx.doi.org/10.1016/j.ahj.2015.04.009.

Oldenburger, David et al. 2022. "COVID - 19 Issues in Long-Term Care in Ontario : A Document Analysis Enjeux Liés à La COVID-19 Dans Les Soins de Longue Durée En Ontario : Une Analyse de Documents." 17: 53–65.

Ontario's Regulatory Registry. 2022. *Fixing Long-Term Care Act, 2021*. Toronto, Canada. https://www.ontario.ca/laws/statute/21f39.

Ontario, Home Care. 2020. "New Poll Shows Over 90% of Ontario Seniors Want to Live at Home as They Age, and Want Government to Invest to Help Them Do It." https://www.newswire.ca/news-releases/new-poll-shows-over-90-of-ontario-seniors-want-to-live-at-home-as-they-age-and-want-government-to-invest-to-help-them-do-it-857341964.html.

———. 2021. "97 Per Cent of Ontario Seniors Want Increased Home Care Funding: Poll." https://www.newswire.ca/news-releases/97-per-cent-of-ontario-seniors-want-increased-home-care-funding-poll-805034645.html (March 3, 2022).

Ontario Long-term Care Association. 2021. "The Role of Long-Term Care." https://www.oltca.com/oltca/OLTCA/Public/LongTermCare/FactsFigures.aspx (August 12, 2022).

Ontario Long Term Care Association. 2019. "Facts and Figures." https://www.oltca.com/oltca/OLTCA/Public/LongTermCare/FactsFigures.aspx (December 3, 2020).

Ontario Ministry of Finance. 2019. "Ontario Population Projections, 2018-2046." : 2018–46.

Ontario Ministry of Health. 2021. "Ontario Welcomes New Long-Term Care Development Proposals." https://news.ontario.ca/en/release/1001009/ontario-welcomes-new-long-term-care-development-proposals.

———. 2022. "Long-Term Care Accommodation Costs and Subsidy."

———. *Ontario Health Teams: Guidance for Health Care Providers and Organizations*.

Osler, Merete, Solvej Mårtensson, Eva Prescott, and Kathrine Carlsen. 2014. "Impact of Gender, Co-Morbidity and Social Factors on Labour Market Affiliation after First Admission for Acute Coronary Syndrome. A Cohort Study of Danish Patients 2001-2009." *PLoS ONE* 9(1).

Patel, Asiya et al. 2019. "Double Burden of Rural Migration in Canada? Considering the Social Determinants of Health Related to Immigrant Settlement Outside the Cosmopolis." *International Journal of Environmental Research and Public Health* 16(5).

Patterson, Beth, Hmwe Hmwe Kyu, and Katholiki Georgiades. 2013. "Age at Immigration to Canada and the Occurrence of Mood, Anxiety, and Substance Use Disorders." *Canadian Journal of Psychiatry* 58(4): 210–17.

Pelley, Lauren. 2022. "Communities with Low Incomes, Immigrants, Essential Workers Hardest Hit by COVID-19: Study." *CBC News*.

Phillips, Susan P., and Janelle Yu. 2021. "Is Anxiety/Depression Increasing among 5-25 Year-Olds? A Cross-Sectional Prevalence Study in Ontario, Canada, 1997-2017." *Journal of Affective Disorders* 282(November 2020): 141–46. https://doi.org/10.1016/j.jad.2020.12.178.

Pickett, Kate E., and Richard G. Wilkinson. 2008. "People like Us: Ethnic Group Density Effects on Health." *Ethnicity and Health* 13(4): 321–34.

Pignone, Michael P. et al. 2014. "Using a Discrete Choice Experiment to Inform the Design of Programs to Promote Colon Cancer Screening for Vulnerable Populations in North Carolina." *BMC Health Services Research* 14(1): 1–9.

Pinchas-Mizrachi, Ronit, Yaakov Naparstek, Ronit Nirel, and Ehud Kukia. 2020. "The 'Sick Immigrant' and 'Healthy Immigrant' Phenomenon among Jews Migrating from the USSR to Israel." *SSM - Population Health* 12: 100694. https://doi.org/10.1016/j.ssmph.2020.100694.

Pottie, Kevin et al. 2015. "Do First Generation Immigrant Adolescents Face Higher Rates of Bullying, Violence and Suicidal Behaviours Than Do Third Generation and Native Born?" *Journal of Immigrant and Minority Health* 17(5): 1557–66. http://dx.doi.org/10.1007/s10903-014-0108-6.

Puyat, Joseph H. 2013. "Is the Influence of Social Support on Mental Health the Same for Immigrants and Non-Immigrants?" *Journal of Immigrant and Minority Health* 15(3): 598–605.

Quach, Bradley I. et al. 2021. "Comparison of End-of-Life Care between Recent Immigrants and Long-Standing Residents in Ontario, Canada." *JAMA Network Open* 4(11): 1–13.

Quaife, Matthew, Fern Terris-Prestholt, Gian Luca Di Tanna, and Peter Vickerman. 2018. "How Well Do Discrete Choice Experiments Predict Health Choices? A Systematic Review and Meta-Analysis of External Validity." *European Journal of Health Economics* 19(8): 1053–66. https://doi.org/10.1007/s10198-018-0954-6.

Qureshi, Danial et al. 2021. "Describing Differences Among Recent Immigrants and Long-Standing Residents Waiting for Long-Term Care: A Population-Based Retrospective Cohort Study." *Journal of the American Medical Directors Association* 22(3): 648–55. https://doi.org/10.1016/j.jamda.2020.07.018.

Racine, Nicole et al. 2021. "Global Prevalence of Depressive and Anxiety Symptoms in Children and Adolescents during COVID-19: A Meta-Analysis." *JAMA Pediatrics* 175(11): 1142–50.

Raudenbush, S.W., and A.S. Bryk. 2002. *Hierarchial Linear Models: Applications and Data Analysis Methods (2nd Ed.)*. Thousand Oaks: Sage.

Ridde, Valéry et al. 2020. "Unmet Healthcare Needs among Migrants without Medical Insurance in Montreal, Canada." *Global Public Health* 15(11): 1603–16.

Roberts, Tessa et al. 2018. "Factors Associated with Health Service Utilisation for Common

Mental Disorders: A Systematic Review." *BMC Psychiatry* 18(1): 1–19.
Robinson, Stephanie M. et al. 2015. "Home, Please: A Conjoint Analysis of Patient Preferences after a Bad Hip Fracture." *Geriatrics and Gerontology International* 15(10): 1165–70.
Rogers, Wendy A., Widya A. Ramadhani, and Maurita T. Harris. 2020. "Defining Aging in Place: The Intersectionality of Space, Person, and Time." *Innovation in Aging* 4(4): 1–11.
Rosenberg, Julia et al. 2020. "Disparities in Mental and Behavioral Health Treatment for Children and Youth in Immigrant Families." *Academic Pediatrics* 20(8): 1148–56. https://doi.org/10.1016/j.acap.2020.06.013.
Ross, F, RE Mueller, and Arthur Sweetman. 2016. "The Cultural Determinants of Access to Post-Secondary (Higher) Education in Canada: Empirical Evidence and Policy Implications." In *Access and Expansion Post-Massification: Opportunities and Barriers to Further Growth in Higher Education Participation*, eds. BWA JongBloed and H Vossensteyn. New York: Routledge, 150–78.
Rousseau, Cécile, and Rochelle L. Frounfelker. 2019. "Mental Health Needs and Services for Migrants: An Overview for Primary Care Providers." *Journal of Travel Medicine* 26(2): 1–8.
Rousseau, Cécile, Ghayda Hassan, Toby Measham, and Myrna Lashley. 2008. "Prevalence and Correlates of Conduct Disorder and Problem Behavior in Caribbean and Filipino Immigrant Adolescents." *European Child and Adolescent Psychiatry* 17(5): 264–73.
Runnels, Vivian. 2017. *Understanding Immigrant Seniors' Needs and Priorities for Health Care*.
Salam, Zoha et al. 2022. "Systemic and Individual Factors That Shape Mental Health Service Usage Among Visible Minority Immigrants and Refugees in Canada: A Scoping Review." *Administration and Policy in Mental Health and Mental Health Services Research* (0123456789). https://doi.org/10.1007/s10488-021-01183-x.
Salloum, Ramzi G., Elizabeth A. Shenkman, Jordan J. Louviere, and David A. Chambers. 2017. "Application of Discrete Choice Experiments to Enhance Stakeholder Engagement as a Strategy for Advancing Implementation: A Systematic Review." *Implementation Science* 12(1): 1–12.
Samuelson-Kiraly, Claire et al. 2020. "Access and Quality of Health Care in Canada: Insights from 1998 to the Present." *Healthcare Management Forum* 33(6): 253–58.
Sandelowski, M. 2000. "Focus on Research Methods: Whatever Happened to Qualitative Description?" *Research in Nursing and Health* 23(4): 334–40.
Sarría-Santamera, Antonio, Ana Isabel Hijas-Gómez, Rocío Carmona, and Luís Andrés Gimeno-Feliú. 2016. "A Systematic Review of the Use of Health Services by Immigrants and Native Populations." *Public Health Reviews* 37(1). http://dx.doi.org/10.1186/s40985-016-0042-3.
Saunders, Natasha Ruth, Michael Lebenbaum, et al. 2018. "Trends in Mental Health Service Utilisation in Immigrant Youth in Ontario, Canada, 1996-2012: A Population-Based Longitudinal Cohort Study." *BMJ open* 8(9).
Saunders, Natasha Ruth, Peter J. Gill, et al. 2018. "Use of the Emergency Department as a First Point of Contact for Mental Health Care by Immigrant Youth in Canada: A Population-Based Study." *Cmaj* 190(40): E1183–91.
Saunders, Natasha Ruth et al. 2022. "Changes in Hospital-Based Care Seeking for Acute Mental Health Concerns among Children and Adolescents during the COVID-19 Pandemic in Ontario, Canada, Through September 2021." *JAMA Network Open* 5(7): E2220553.
Savaş, Özge et al. 2021. "All Immigrants Are Not Alike : Intersectionality Matters in Views of Immigrant Groups Non-Technical Summary An Intersectional Perspective on Immigrant

Groups."
Sawamura, Kanae, Hiroshi Sano, and Miharu Nakanishi. 2015. "Japanese Public Long-Term Care Insured: Preferences for Future Long-Term Care Facilities, Including Relocation, Waiting Times, and Individualized Care." *Journal of the American Medical Directors Association* 16(4): 350.e9-350.e20. http://dx.doi.org/10.1016/j.jamda.2015.01.082.
Sellström, Eva, and Sven Bremberg. 2006. "The Significance of Neighbourhood Context to Child and Adolescent Health and Well-Being: A Systematic Review of Multilevel Studies." *Scandinavian journal of public health* 34(5): 544–54. http://www.ncbi.nlm.nih.gov/pubmed/16990166 (January 14, 2020).
Sheehan, David V. et al. 2010. "Reliability and Validity of the Mini International Neuropsychiatric Interview for Children and Adolescents (MINI-KID)." *Journal of Clinical Psychiatry* 71(3): 313–26.
Shields, Margot et al. 2021. "Symptoms of Major Depressive Disorder during the Covid-19 Pandemic: Results from a Representative Sample of the Canadian Population." *Health Promotion and Chronic Disease Prevention in Canada* 41(11): 340–58.
Shim, R.S. et al. 2009. "Race-Ethnicity as a Predictor of Attitudes Toward Mental Health Treatment Seeking." *Psychiatr Serv.* 60(10): 1336–41. file:///C:/Users/Carla Carolina/Desktop/Artigos para acrescentar na qualificação/The impact of birth weight on cardiovascular disease risk in the.pdf.
Shortt, Janet. 2014. "A Historical Perspective of the Effect of the Great Recession on Hospitals." *AORN Journal* 100(2): 177–87.
Smith, James P. 1999. "Healthy Bodies and Thick Wallets: The Dual Relation between Health and Economic Status." *Journal of Economic Perspectives* 13(2): 145–66.
Sohail, Qazi Zain et al. 2015. "The Risk of Ischemic Heart Disease and Stroke Among Immigrant Populations: A Systematic Review." *Canadian Journal of Cardiology* 31(9): 1160–68. http://dx.doi.org/10.1016/j.cjca.2015.04.027.
Soril, Lesley JJ, Ted Adams, and Madeline Phipps-Taylor. 2014. "Is Canadian Healthcare Affordable ? A Comparative Analysis of the Canadian Healthcare System from 2004 to 2014 Les Soins de Santé Sont-Ils Abordables Au Canada ? Analyse Comparative Du Système de Santé Canadien de 2004 à 2014." *Healthcare Policy* 13(1): 43–58.
Spoont, Michele R. et al. 2014. "Impact of Treatment Beliefs and Social Network Encouragement on Initiation of Care by VA Service Users with PTSD." *Psychiatric Services* 65(5): 654–62.
Stafford, Mai, Bruce K. Newbold, and Nancy A. Ross. 2011. "Psychological Distress among Immigrants and Visible Minorities in Canada: A Contextual Analysis." *International Journal of Social Psychiatry* 57(4): 428–41.
Statistics Canada. 2016. "2016 Census Topic: Age and Sex." https://www12.statcan.gc.ca/census-recensement/2016/rt-td/as-eng.cfm (February 1, 2020).
———. 2017a. "Census in Brief Children with an Immigrant Background: Bridging Cultures." (98): 1–8.
———. 2017b. "Illustrated Glossary - Census Tract (CT)." https://www150.statcan.gc.ca/n1/pub/92-195-x/2016001/geo/ct-sr/ct-sr-eng.htm (January 10, 2022).
———. 2018. "Immigration and Ethnocultural Diversity in Canada."
———. 2021. "Tax Filers and Dependants with Income by Total Income, Sex and Age." https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1110000801 (August 12, 2022).

Steele, Leah S, Carolyn S Dewa, and Elizabaeth Lin. 2007. "Education Level , Income Level and Mental Health Services Use in Canada : Associations and Policy Implications Niveau de Scolarité , Niveau de Revenu et Utilisation Répercussions Sur Les Associations et Les Politiques." *Health Care Policy* 3(1): 96–106.

Stepner, Michael. 2019. "The Insurance Value of Redistributive Taxes and Transfers."

Straus, Sharon E., Eric K.C. Wong, Trina Thorne, and Carole Estabrooks. 2021. "Recommendations from Long-Term Care Reports, Commissions, and Inquiries in Canada." *F1000Research* 10: 1–17.

Stronks, K., H. Van de Mheen, J. Van den Bos, and J. P. Mackenbach. 1997. "The Interrelationship between Income, Health and Employment Status." *International Journal of Epidemiology* 26(3): 592–600.

Sweetman, Arthur. 2017. "Canada's Immigration System: Lessons for Europe?" *Intereconomics* 52(5): 277–84.

Sweetman, Arthur, and Casey Warman. 2013a. "Canada's Immigration Selection System and Labour Market Outcomes." *Canadian Public Policy* 39(SUPPL.1).

———. 2013b. "Canada's Immigration Selection System and Labour Market Outcomes." *Canadian Public Policy* 39(SUPPL.1).

Tanaka, Atsuko. 2021. "The Effects of Sudden Health Reductions on Labor Market Outcomes: Evidence from Incidence of Stroke." *Health Economics (United Kingdom)* 30(6): 1480–97.

The Government of Canada. 2006. Minister of Public Works and Government Services Canada *The Human Face of Mental Health and Mental Illness in Canada 2006*. http://www.phac-aspc.gc.ca/publicat/human-humain06/index-eng.php.

The Standing Senate Committee on Social Affairs, Science and Technology. 2006. The Senate *Transforming Mental Health , Mental Illness and Addiction Services in Canada*.

Thornicroft, Graham, and Michele Tansella. 2004. "Components of a Modern Mental Health Service: A Pragmatic Balance of Community and Hospital Care. Overview of Systematic Evidence." *British Journal of Psychiatry* 185(OCT.): 283–90.

Torres, Sandra. 2009. "Vignette Methodology and Culture-Relevance: Lessons Learned through a Project on Successful Aging with Iranian Immigrants to Sweden." *Journal of Cross-Cultural Gerontology* 24(1): 93–114.

Trevisan, Elisabetta, and Francesca Zantomio. 2016. "The Impact of Acute Health Shocks on the Labour Supply of Older Workers: Evidence from Sixteen European Countries." *Labour Economics* 43: 171–85. http://dx.doi.org/10.1016/j.labeco.2016.04.002.

Tricco, Andrea C. et al. 2015. "A Scoping Review of Rapid Review Methods." *BMC Medicine* 13(1). http://dx.doi.org/10.1186/s12916-015-0465-6.

Tu, Jack V. et al. 2015. "Incidence of Major Cardiovascular Events in Immigrants to Ontario, Canada: The CANHEART Immigrant Study." *Circulation* 132(16): 1549–59.

Um, Seong-gee. 2021. "Reforming Long-Term Care Requires a Diversity and Equity Approach." *Policy Options*. https://policyoptions.irpp.org/magazines/may-2021/reforming-long-term-care-requires-a-diversity-and-equity-approach/.

Um, Seong-gee, and Naomi Lightman. 2016. "Ensuring Healthy Aging for All Home Care Access for Diverse Senior." (July).

Um, Seong-Gee, and Naomi Lightman. 2017. "Seniors' Health in the GTA: How Immigration, Language, and Racialization Impact Seniors' Health." *Wellesley Institute* (May). www.wellesleyinstitute.com.

Vang, Zoua M., Jennifer Sigouin, Astrid Flenon, and Alain Gagnon. 2017. "Are Immigrants

Healthier than Native-Born Canadians? A Systematic Review of the Healthy Immigrant Effect in Canada." *Ethnicity and Health* 22(3): 209–41. http://dx.doi.org/10.1080/13557858.2016.1246518.

Vayda, Eugene, and Raisa B Deber. 1984. "The Canadian Health Care System: An Overview." *Soc Sci Med* 18(3): 191–97.

Veldwijk, Jorien et al. 2014. "The Effect of Including an Opt-out Option in Discrete Choice Experiments." *PLoS ONE* 9(11).

Viruell-Fuentes, Edna A., Patricia Y. Miranda, and Sawsan Abdulrahim. 2012. "More than Culture: Structural Racism, Intersectionality Theory, and Immigrant Health." *Social Science and Medicine* 75(12): 2099–2106. http://dx.doi.org/10.1016/j.socscimed.2011.12.037.

Vogel, D.L. et al. 2007. "Seeking Help From a Mental Health Professional: The Influence of One's Social Network." *Journal of Clinical Psychology* 63(3): 233–45.

Vyas, Manav V. et al. 2017. "Lost Productivity in Stroke Survivors: An Econometrics Analysis." *Neuroepidemiology* 47(3–4): 164–70.

Vyas, Manav V., Claire De Oliveira, Audrey Laporte, and Moira K. Kapral. 2019. "The Association between Stroke, Integrated Stroke Systems, and the Employability and Productivity of Canadian Stroke Survivors." *Neuroepidemiology* 53(3–4): 209–19.

Waddell, Charlotte et al. 2019. "2014 Ontario Child Health Study Findings: Policy Implications for Canada." *Canadian Journal of Psychiatry* 64(4): 227–31.

Walsh, Sharon et al. 2019. "Public Preferences for Home Care Services for People with Dementia: A Discrete Choice Experiment on Personhood." *Social Science & Medicine*: 112675. https://doi.org/10.1016/j.socscimed.2019.112675.

Walter Rasugu Omariba, D., Nancy A. Ross, Claudia Sanmartin, and Jack T. Tu. 2014. "Neighbourhood Immigrant Concentration and Hospitalization: A Multilevel Analysis of Cardiovascular-Related Admissions in Ontario Using Linked Data." *Canadian Journal of Public Health* 105(6): e404–11.

Wang, Lu. 2011. "Analysing Spatial Accessibility to Health Care: A Case Study of Access by Different Immigrant Groups to Primary Care Physicians in Toronto." *Annals of GIS* 17(4): 237–51.

Wang, Lu, Sepali Guruge, and Gelsomina Montana. 2019. "Older Immigrants' Access to Primary Health Care in Canada: A Scoping Review." *Canadian Journal on Aging* 38(2): 193–209.

Wang, P et al. 2007. "Use of Mental Health Services for Anxiety, Mood, and Substance Disorders in 17 Countries in the WHO World Mental Health Surveys." *Lancet* 370: 841–50.

White, Kellee, Jennifer S. Haas, and David R. Williams. 2012. "Elucidating the Role of Place in Health Care Disparities: The Example of Racial/Ethnic Residential Segregation." *Health Services Research* 47(3 PART 2): 1278–99.

Whitley, Rob et al. 2017. "Mental Health Status, Health Care Utilisation, and Service Satisfaction among Immigrants in Montreal: An Epidemiological Comparison." *Canadian Journal of Psychiatry* 62(8).

Wiens, K et al. 2020. "A Growing Need for Youth Mental Healthservices in Canada: Examining Trends Inyouth Mental Health from 2011 to 2018." *Epidemiology and PsychiatricSciences* 29(e115): 1–9.

Wilkinson, Andrea et al. 2019. "Overall Quality Performance of Long-Term Care Homes in Ontario." *Healthcare quarterly* 22(2).

Wolff, Jennifer L., Judith D. Kasper, and Andrew D. Shore. 2008. "Long-Term Care Preferences

among Older Adults: A Moving Target?" *Journal of Aging and Social Policy* 20(2): 182–200.

Wong, Irene O.L., Benjamin J. Cowling, Su Vui Lo, and Gabriel M. Leung. 2009. "A Multilevel Analysis of the Effects of Neighbourhood Income Inequality on Individual Self-Rated Health in Hong Kong." *Social Science and Medicine* 68(1): 124–32. http://dx.doi.org/10.1016/j.socscimed.2008.09.064.

Wong, Suzy L., Heather Gilmour, and Pamela L. Ramage-Morin. 2016. "Alzheimer's Disease and Other Dementias in Canada." *Health Reports* 27(5): 11–16.

Zaresani, Arezou. 2018. "Return-to-Work Policies and Labor Supply In." *AEA Papers and Proceedings* 108: 272–76.

Zimmer, David M. 2015. "Employment Effects of Health Shocks: The Role of Fringe Benefits." *Bulletin of Economic Research* 67(4): 346–58.

Zimmerman, Frederick J. 2005. "Social and Economic Determinants of Disparities in Professional Help-Seeking for Child Mental Health Problems: Evidence from a National Sample." *Health Services Research* 40(5 I): 1514–33.

Zondervan-Zwijnenburg, Maria A.J. et al. 2020. "Parental Age and Offspring Childhood Mental Health: A Multi-Cohort, Population-Based Investigation." *Child Development* 91(3): 964–82.

Table 1: Descriptive statistics

Characteristic	Non-immigrant n (%)	Immigrant n (%)	Total n (%)
Personal characteristics			
Sex			
Male	311 (51%)	231 (52%)	542 (51%)
Female	300 (49%)	214 (48%)	514 (49%)
Other	1 (0%)	0 (0%)	1 (0%)
Age (mean +/- SD)	61.9 (9.1)	69.3 (9.8)	62.3 (9.4)
Employment			
Not employed	320 (52%)	221 (50%)	541 (51%)
Part-time	89 (15%)	59 (13%)	148 (14%)
Full-time	202 (33%)	162 (36%)	364 (34%)
Unknown	1 (0%)	3 (1%)	4 (0%)
Marital status			
Married or common-law	439 (72%)	337 (76%)	776 (73%)
Widowed, separated, or divorced	103 (17%)	78 (18%)	181 (17%)
Single, never married	68 (11%)	29 (7%)	97 (9%)
Unknown	2 (0%)	1 (0%)	3 (0%)
Language			
English	584 (95%)	339 (76%)	923 (87%)
French	7 (1%)	2 (0%)	9 (1%)
English and French	11 (2%)	3 (1%)	14 (1%)
Other	10 (2%)	99 (22%)	109 (10%)
Unknown	0 (0%)	2 (0%)	2 (0%)
Duration in Canada			
Recent immigrant	42 (7%)	10 (2%)	52 (5%)
Long-term immigrant	0 (0%)	412 (93%)	412 (39%)
Not applicable – Canadian-born	570 (93%)	23 (5%)	593 (56%)
Ethnicity			
White/Caucasian	555 (91%)	250 (56%)	805 (76%)
Chinese, Filipino, Japanese or Korean	23 (4%)	84 (19%)	107 (10%)
South-east Asian	0 (0%)	4 (1%)	4 (0%)
South Asian	3 (0%)	49 (11%)	52 (5%)
Black	3 (0%)	14 (3%)	17 (2%)
Hispanic or Latino	2 (0%)	9 (2%)	11 (1%)
Caribbean	1 (0%)	8 (2%)	9 (1%)
West Asian	1 (0%)	4 (1%)	5 (0%)
Arab	4 (1%)	4 (1%)	8 (1%)
First nation	6 (1%)	2 (0%)	8 (1%)
Mixed	11 (2%)	12 (3%)	23 (2%)
Unknown	2 (0%)	5 (1%)	7 (1%)
Personal income			
$0 or less than $24,999	39 (6%)	29 (7%)	68 (6%)
$25000-$49,999	124 (20%)	105 (24%)	229 (22%)

$50,000-$74,999	150 (25%)	97 (22%)	247 (23%)
$75,000-$99,999	108 (18%)	92 (21%)	200 (19%)
$100,000-$124,999	66 (11%)	51 (12%)	117 (11%)
$125,000-$149,999	53 (9%)	21 (5%)	74 (7%)
$150,000 or more	60 (10%)	41 (9%)	101 (10%)
Unknown	12 (2%)	9 (2%)	21 (2%)
Household characteristics			
Spouse/partner	298 (49%)	218 (49%)	516 (49%)
Children	158 (26%)	124 (28%)	282 (27%)
Grand-children	8 (1%)	9 (2%)	17 (2%)
Other family	14 (2%)	20 (4%)	34 (3%)
Friends	14 (2%)	10 (2%)	24 (2%)
Live alone	116 (19%)	63 (14%)	179 (17%)
Other	2 (0%)	0 (0%)	2 (0%)
Unknown	2 (0%)	1 (0.2%)	3 (0%)
Residence			
Apartment or condominium	131 (21%)	120 (27%)	251 (24%)
Town-home	51 (8%)	48 (11%)	99 (9%)
Co-op	3 (0%)	2 (0%)	5 (0%)
Semi-detached or detached house	425 (69%)	273 (61%)	698 (66%)
Retirement home	1 (0%)	1 (0%)	2 (0%)
Unknown	1 (0%)	1 (0%)	2 (0%)
Household income			
$25000-$49,999	112 (18%)	83 (19%)	195 (18%)
$50,000-$74,999	138 (23%)	87 (20%)	225 (21%)
$75,000-$99,999	124 (20%)	105 (24%)	229 (22%)
$100,000-$124,999	77 (13%)	62 (14%)	139 (13%)
$125,000-$149,999	64 (10%)	49 (11%)	113 (11%)
$150,000 or more	97 (16%)	59 (13%)	156 (15%)
Health variables			
Health status			
Excellent	56 (9%)	41 (9%)	97 (9%)
Very good	219 (36%)	163 (37%)	382 (36%)
Good	207 (34%)	170 (38%)	377 (36%)
Fair	104 (17%)	58 (13%)	162 (15%)
Poor	24 (4%)	13 (3%)	37 (4%)
Unknown	2 (0%)	0 (0%)	2 (0%)
Covid-19			
Did not have Covid-19	385 (63%)	309 (69%)	694 (66%)
Diagnosed with Covid-19	167 (27%)	95 (21%)	262 (25%)
Symptomatic but not diagnosed	48 (8%)	35 (8%)	83 (83%)
Do not know whether infected	10 (2%)	4 (1%)	14 (1%)
Unknown	2 (0%)	2 (0%)	4 (0%)
Chronic health conditions			
0	204 (33%)	162 (36%)	366 (35%

1 to 3	349 (57%)	247 (56%)	596 (56%)
4 to 6	49 (85)	28 (6%)	77 (7%)
7 or more	7 (1%)	3 (1%)	10 (1%)
Unknown	3 (0%)	5 (1%)	8 (1%)
Dementia			
No	586 (96%)	0 (0%)	1000 (95%)
Diagnosed	1 (0%)	414 (93%)	1 (0%)
Symptomatic	5 (1%)	15 (3%)	20 (2%)
Do not know	16 (3%)	13 (99%)	29 (3%)
Unknown	4 (1%)	3 (1%)	7 (1%)
Health services variables			
Home care use			
No	579 (95%)	425 (96%)	1004 (95%)
Participant used home care	22 (4%)	8 (2%)	30 (3%)
Family member used home care	10 (2%)	9 (2%)	19 (2%)
Unknown	1 (0%)	3 (1%)	4 (0%)
Long-term care/retirement home use			
No	497 (81%)	356 (80%)	853 (81%)
Considered retirement home	41 (8%)	39 (9%)	90 (9%)
Considered long-term care home	63 (10%)	45 (10%)	108 (10%)
Unknown	1 (0%)	5 (1%)	6 (1%)
Hospitalization			
No	564 (92%)	397 (89%)	961 (91%)
Once	47 (8%)	46 (10%)	93 (9%)
Unknown	1 (0%)	2 (0%)	3 (0%)
Informal help			
No	120 (20%)	293 (66%)	728 (69%)
Yes	435 (71%)	109 (24%)	229 (22%)
Do not know	56 (9%)	40 (9%)	96 (9%)
Unknown	1 (0%)	3 (0%)	4 (0%)
Payment			
Self-funded	192 (32%)	133 (30%)	325 (31%)
Family-funded	33 (5%)	44 (10%)	77 (7%)
Community organization	4 (1%)	5 (1%)	9 (1%)
Private insurance	177 (29%)	122 (27%)	299 (28%)
Governmental assistance	194 (32%)	134 (30%)	328 (31%)
Do not know	3 (0%)	3 (1%)	6 (1%)
Unknown	4 (1%)	3 (1%)	7 (1%)
Knowledge			
Excellent	28 (5%)	24 (5%)	52 (5%)
Good	207 (34%)	133 (30%)	340 (32%)
Fair	297 (49%)	215 (48%)	512 (48%)
Poor	79 (13%)	71 (16%)	150 (14%)
Unknown	1 (0%)	2 (0%)	3 (0%)
Total	612 (58%)	445 (42%)	1057 (100%)

Table 2: Conditional logit regression results

	Overall	Non-immigrant	Immigrant	Males	Females
	Coefficient [95% Confidence Interval]				
Home care (referent: long-term care)	0.84***	0.84***	0.84***	0.83**	0.84**
	[0.67, 1.01]	[0.61, 1.06]	[0.50, 1.09]	[0.58, 1.07]	[0.61, 1.08]
Hours of care	-0.04	0.02	-0.12	0.09	-0.17
	[-0.20, 0.13]	[-0.19, 0.24]	[-0.37, 0.13]	[-0.14, 0.33]	[-0.40, 0.05]
Semi-private room (referent: standard)	-0.14**	-0.19**	-0.07	-0.19	-0.08
	[-0.24, -0.03]	[-0.33, -0.05]	[-0.23, 0.10]	[-0.33, -0.04]	[-0.24, 0.07]
Private room (referent: standard)	0.27***	0.19***	0.38**	0.31**	0.24**
	[0.17, 0.37]	[0.06, 0.33]	[0.23, 0.53]	[0.17, 0.44]	[0.10, 0.39]
Greater rotation of staff (referent: lower rotation of staff)	0.02	0.1	0.02	0.4	-0.0
	[-0.02, 0.06]	[-0.04, 0.07]	[-0.04, 0.09]	[-0.01, 0.10]	[-0.07, 0.05]
Culturally-adapted care (referent: no culturally-adapted care)	0.06**	0.06	0.5	0.5	0.6
	[0.01, 0.10]	[0.00, 0.12]	[-0.01, 0.12]	[-0.01, 0.11]	[-0.00, 0.13]
Wait-time	-0.12***	-0.13***	-0.10**	-0.07	-0.17***
	[-0.17, -0.06]	[-0.20, -0.05]	[-0.18, -0.02]	[-0.15, 0.01]	[-0.24, -0.09]
20 to 30 mins distance to family (referent: 1 to 1.5 hours)	0.12**	0.1	0.15**	0.07	0.17**
	[0.05, 0.19]	[0.00, 0.20]	[0.03, 0.26]	[-0.03, 0.17]	[0.06, 0.28]
Price	-0.21***	-0.22**	-0.19***	-0.23***	-0.19***
	[-0.23, -0.19]	[-0.25, -0.20]	[-0.21, -0.16]	[-0.25, -0.20]	[-0.21, -0.16]
Number of observations	10570	6120	4450	5420	5140
Number of participants	1057	612	445	542	514

**** p<0.01, ** p<0.05, * p<0.1*

Table 3: Marginal willingness-to-pay ($/month)

	Overall	Non-Immigrant	Immigrant	Males	Females
	CAN$ [95% Confidence Interval]				
Home care (referent: long-term care)	4017 [3120, 4914]	3714 [2611, 4817]	4490 [2955, 6026]	3645 [2471, 4818]	4483 [3092, 5874]
Hours of care	-38 [-193, 119]	21 [-167, 209]	-129 [-404, 146]	82 [-121, 285]	-186 [-432, 60]
Semi-private room (referent: standard)	-650 [-1171, -130]	-842 [-1472, -212]	-372 [-1270, 525]	-828 [-1486, -171]	-450 [-1289, 389]
Private room (referent: standard)	1309 [809, 1810]	865 [252, 1478]	2029 [1154, 2903]	1350 [713, 1987]	1299 [494, 2103]
Greater rotation of staff (referent: lower rotation of staff)	82 [-114, 278]	63 [-173, 300]	118 [-222, 457]	190 [-57, 436]	-42 [-359, 274]
Culturally-adapted care (referent: no culturally-adapted care)	277 [73, 480]	271 [17, 525]	289 [-53, 631]	228 [-25, 480]	333 [-2, 668]
Wait-time	-46 [-68, -24]	-47 [-75, -20]	-46 [-83, -9]	-26 [-55, 4]	-75 [-109, -41]
20 to 30 mins distance to family (referent: 1 to 1.5 hours)	575 [223, 928]	436 [6, 867]	790 [187, 1393]	299 [-143, 741]	911 [334, 1488]
Number of observations	10570	6120	4450	5420	5140
Number of participants	1057	612	445	542	514

Table 4: Sensitivity analysis – coefficients

	Dropping quickest participants	Dropping those who failed dominant-choice test	Dropping those who failed dementia-question test	Dropping those who failed age questions test	Dropping those who failed any of the tests	Full sample
			Coefficient [95% Confidence Interval]			
Home care (referent: long-term care)	0.80*** [0.63, 0.98]	0.82*** [0.65, 1.00]	0.70*** [0.50, 0.90]	0.78*** [0.61, 0.96]	0.61*** [0.39, 0.82]	0.84*** [0.67, 1.01]
Hours of care	0.00 [-0.16, 0.16]	-0.02 [-0.19, 0.14]	0.08 [-0.11, 0.27]	-0.00 [-0.17, 0.16]	0.16 [-0.04, 0.36]	-0.04 [-0.20,0.13]
Semi-private room (referent: standard)	-0.12** [-0.23, -0.02]	-0.14** [-0.25, -0.03]	-0.07 [-0.20, 0.05]	-0.13** [-0.24, -0.02]	-0.07 [-0.20, 0.06]	-0.14** [-0.24, -0.03]
Private room (referent: standard)	0.29*** [0.18, 0.38]	0.31*** [0.20, 0.41]	0.35*** [0.23, 0.47]	0.28*** [0.17, 0.38]	0.38*** [0.25, 0.50]	0.27*** [0.17, 0.37]
Greater rotation of staff (referent: lower rotation)	0.02 [-0.02, 0.06]	0.02 [-0.02, 0.06]	0.00 [-0.05, 0.05]	0.02 [-0.02, 0.06]	0.00 [-0.05, 0.06]	0.02 [-0.02, 0.06]
Culturally-adapted care (referent: no culturally-adapted care)	0.07** [0.02, 0.11]	0.05* [-0.00, 0.10]	0.05 [-0.00, 0.01]	0.06** [0.02, 0.11]	0.05 [-0.01, 0.10]	0.06** [0.01,0.10]
Wait-time	-0.11*** [-0.17, -0.06]	-0.13*** [-0.18, -0.07]	-0.10*** [-0.17, -0.04]	-0.12*** [-0.18, -0.06]	-0.11** [-0.18, -0.03]	-0.12*** [-0.17, -0.06]
20 to 30 minutes distance to family (referent: 1 to 1.5 hours)	0.12** [0.05, 0.20]	0.14*** [0.06, 0.22]	0.09 [-0.01, 0.18]	0.13** [0.05, 0.20]	0.12 [-0.01, 0.22]	0.12** [0.05, 0.19]
Price	-0.21*** [-0.23, -0.19]	-0.22*** [-0.24, -0.20]	-0.21*** [-0.23, -0.19]	-0.21*** [-0.23, -0.19]	-0.22*** [-0.24, -0.19]	-0.21*** [-0.23, -0.19]
Number of observations	10040	9960	6940	1050	6080	10570
Number of participants	1004	996	694	1005	608	1057

*** *p<0.01*, ** *p<0.05*, * *p<0.1*

Table 5: Sensitivity analysis – Willingness-to-pay ($/month)

	Dropping quickest participants	Dropping those who failed dominant-choice test	Dropping those who failed dementia-question test	Dropping those who failed age questions test	Dropping those who failed any of the tests	Full sample
			CAN$ [95% Confidence Interval]			
Home care (referent: long-term care)	3805 [2908, 4701]	3769 [2883, 4655]	3326 [2285, 4368]	3732 [2832, 4633]	2788 [1720, 3837]	4017 [3120, 4914]
Hours of care	0 [-155, 155]	-21 [-175, 132]	78 [-100, 256]	0 [-158, 155]	148 [-30, 326]	-37 [-193, 119]
Semi-private room (referent: standard)	-581** [-1099, -62]	-650** [-1165, -135]	-339 [-944, 265]	-609 [-1129, -90]	-310 [-915, 296]	-650 [-1171, -129]
Private room (referent: standard)	1341 [835, 1848]	1395 [901, 1887]	1663 [1030, 2295]	1309 [804, 1813]	1719 [1069, 2368]	1309 [809, 1810]
Greater rotation of staff (referent: lower rotation)	84 [-115, 283]	86 [-110, 281]	19 [-223, 261]	91 [-108, 289]	21 [-228, 271]	82 [-114, 278]
Culturally-adapted care (referent: no culturally-adapted care)	308 [103, 512]	240 [43, 438]	222 [-27, 471]	299 [95, 502]	206 [-43, 455]	277 [73, 480]
Wait-time	-44 [-67, -22]	-48 [-70, -26]	-42 [-69, -14]	-48 [-70, -25]	-41 [-69, -12]	-46 [-68, -24]
20 to 30 minutes distance to family (referent: 1 to 1.5 hours)	578 [218, 937]	651 [298, 1004]	405 [-49, 860]	589 [231, 946]	531 [56, 1006]	575 [223, 928]
Number of observations	10040	9960	6940	1050	6080	10570
Number of participants	1004	996	694	1005	608	1057

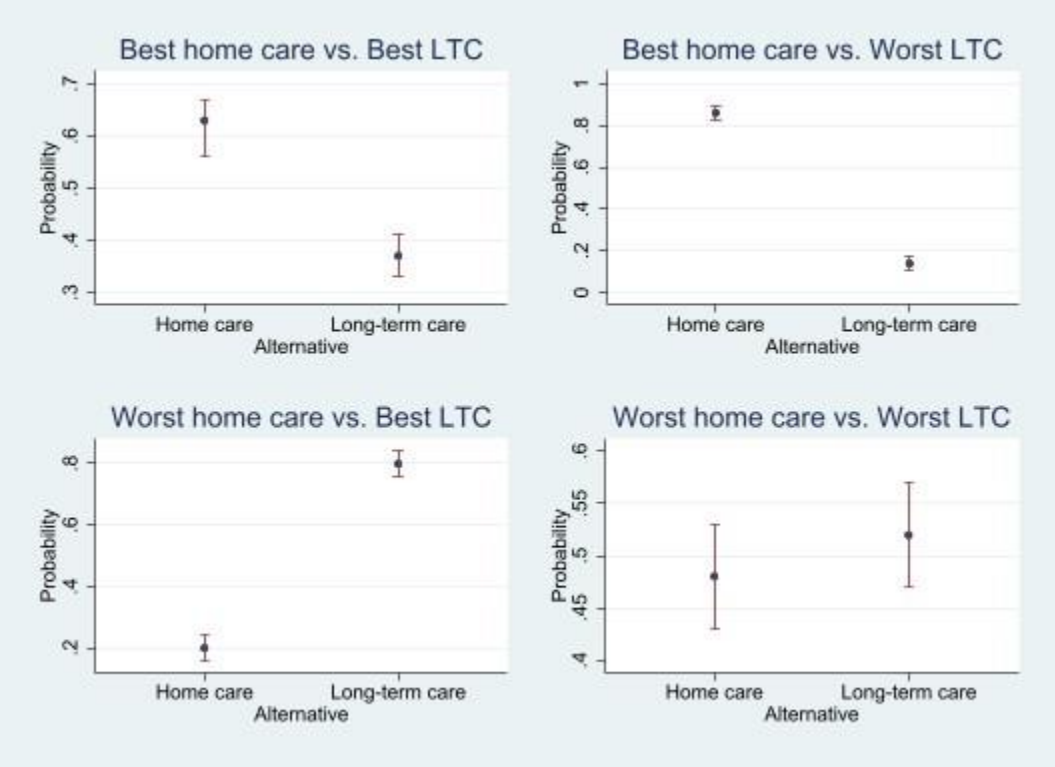


Figure 1: Predicted probability of choosing home care or long-term care in different scenarios

Appendix C1: Search strategy for rapid review

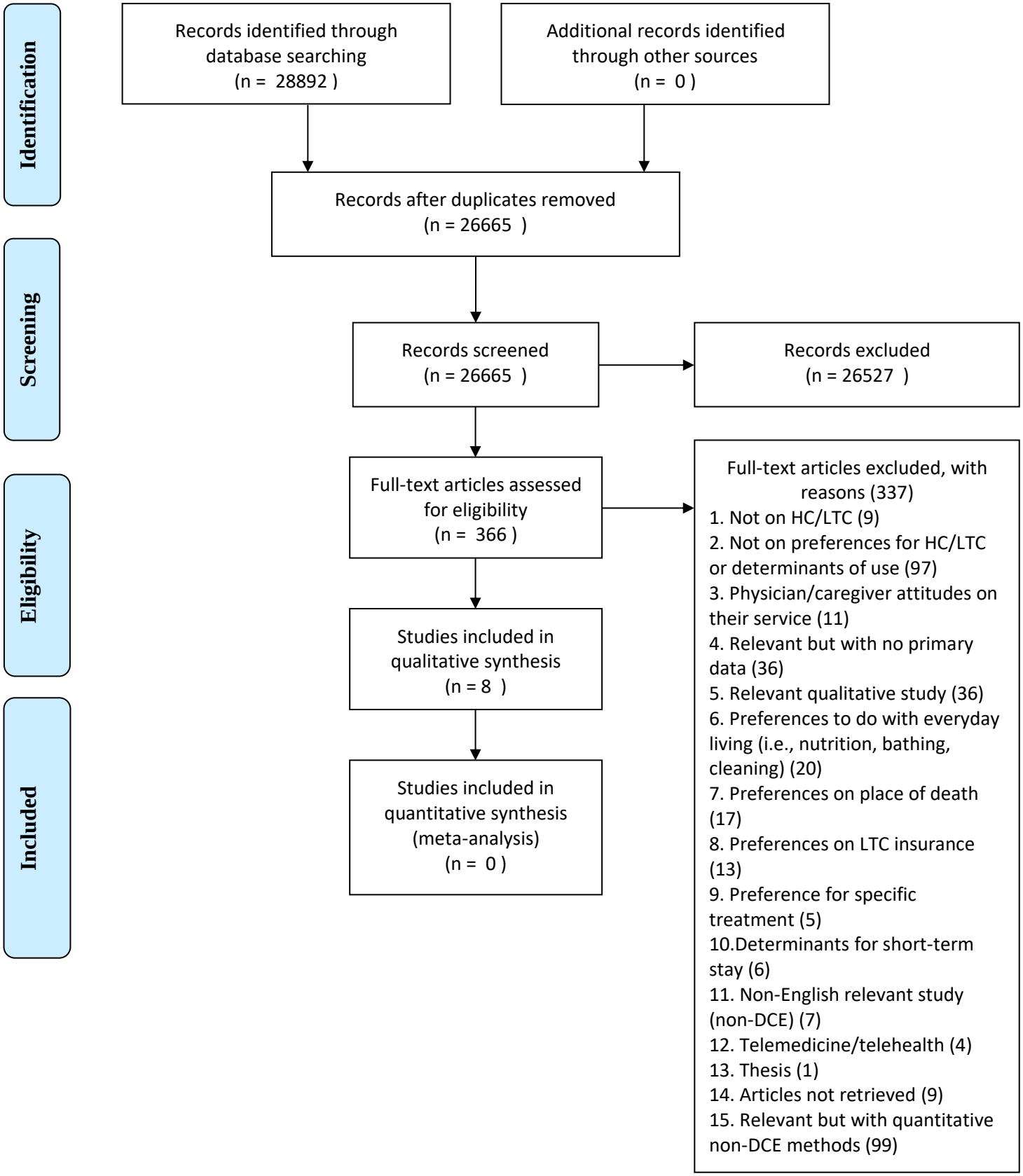
Medline

Date of search: April 13 2020
Number of hits: 25894
Search: (((social-care) OR ("elder* care") OR (age*-care) OR (geriatric-care) OR ("old-person care") OR ("senior* care) OR (“assisted-living”) OR (“residential-care”) OR (“home care”) OR ("home*-service") OR (“informal-care”) OR ("person-cent## care") OR ("patient-cent## care") OR ("community care") OR ("nursing-home") OR ("nursing-care")) AND ((prefer*) OR (“stated preference*”) OR (desire*) OR (wish*) OR (decision*) OR (choice*) OR (priorit*) OR ("intention-to-use") OR (“patient-participation”) OR ("trade- off") OR (“decision analysis”) OR ("conjoint analysis") OR ("conjoint measurement") OR "conjoint study" OR "conjoint choice-experiment" OR ("discrete choice*") OR ("DCE") OR ("pair-wise") OR ("paired comparison") OR ("choice exercise") OR ("dichotomous choice”) OR (“contingent valuation”) OR ("visual analog scale") OR ("analytic hierarchy process") OR ("willingness-to-pay") OR ("WTP") OR ("best-worst scaling") OR ("game") OR (“gamble”)))

EconLit

Date of search: April 13 2020
Number of hits: 998
Search: ((TI "social-care" OR TI ("elder-care" or "older-care" or "age*-care" or "eldercare") OR TI "senior-care" OR TI "geriatric-care" OR TI "old-person care" OR TI "assisted-living" OR TI "residential-care" OR TI "resident-home" OR "retirement-home" OR TI ("home care" or "homecare") OR TI "informal care" OR TI "nursing-care" OR "nursing-home" OR "home-service" OR TI "community-care" OR TI "patient-centred care" OR TI "person-centred care") OR TI ("long-term care" OR "LTC") OR (AB "social-care" OR AB ("elder care" or "older care" or "age*-care" or "eldercare") OR AB "geriatric-care" OR AB "old-person care" OR AB "senior-care" OR AB "assisted-living" OR AB "residential-care" OR AB ("home care" or "homecare") OR AB "informal-care" OR AB "nursing-care" OR AB "home-service" OR AB "community-care" OR AB "patient-centred care" OR AB "person-centred care")) AND ((AB prefer* OR AB "stated preference" OR AB desire* OR AB wish* OR AB decision* OR AB choice* OR AB priorit* OR AB ("intention-to-use") OR AB "patient participation" OR AB ("tradeoff" OR "trade-off") OR AB "decision analysis" OR AB ("conjoint-analysis" OR "conjoint measurement" OR "conjoint study" OR "conjoint choice experiment") OR (AB ("discrete choice experiment" OR discrete choice* OR "DCE") OR AB (pair-wise OR pairwise OR "paired comparisons") OR AB "choice exercise" OR AB "dichotomous-choice" OR AB "contingent valuation" OR AB "visual-analog-scale" OR AB "analytic hierarchy process" OR AB "willingness-to-pay" OR AB WTP OR AB "best-worst scaling" OR AB (game OR gamble) OR AB "part-worth utilities" OR "functional measurement" OR (TI prefer* OR TI "stated preference" OR TI desire* OR TI wish* OR TI decision* OR TI choice* OR TI priorit* OR TI (" intention-to-use") OR TI "patient participation" OR TI (trade off_ OR TI "decision-analysis" OR TI ("conjoint analysis" OR "conjoint measurement" OR "conjoint study" or "conjoint choice-experiment") OR (TI ("discrete choice experiment" OR discrete choice* OR "DCE") OR TI (pair-wise OR pairwise OR "paired comparisons") OR TI choice exercise OR TI dichotomous-choice OR TI contingent valuation OR TI visual-analog-scale OR TI analytic hierarchy process OR TI "willingness-to-pay" OR TI WTP OR TI best-worst scaling OR TI (game OR gamble)))

Appendix C2: Prisma diagram showing the flow of studies



Appendix C3: Literature Review Results

eTable 1a: Study characteristics and findings from review

Citation	Year(s) of data collection	Setting/population/ outcome	Data collection method	Recruitment Strategy	Sample size	Analysis	Reported study findings
Kaambwa, B., Lancsar, E., et al., Social Science and Medicine, 2015	2013	Setting: Australia Population: Caregiver, User Outcome: Choice of package	In-person survey facilitated by aged care research partners	Purposeful sampling identified by research partners	117	Conditional logit model to study main effects and heteroscedastic conditional logit (clogit-het), mixed logit, and (MXL) generalised multinomial logit (G-MNL) to study heterogenous effects	"Most preferred package is one where clients have access to multiple service providers, are able to save half of the unused funds from a CACS for future use, are able to choose some of the support workers providing CACSs, have medium contact with their service provider, consumers themselves manage budgets and support workers are partly flexible around the care activities they provide. The only statistically significant difference in preferences expressed between clients and their caregivers were that decisions about the type of services that an individual receives should not be made entirely by the service provider with no input from consumers (marginally higher amongst informal carers, participants with more academic qualifications and those with prior knowledge of CDC) and that service providers need to supply all the information for an individual to make decisions about the types of service to be received (marginally higher amongst individuals with fewer academic qualifications)"
Dixon, S., Nancarrow, S., 2013, Health Expectations,	2013	Setting: UK Population: User Outcome: Choice of service configuration	In-person survey	Not clear	77	Random effects probit model	"Location of care was the most important. In univariate analysis, for location of care, 'home' appears to be clearly favoured, with hospital and residential care preferred least. In multivariate analysis, home-based care was the most preferred method. Hospital and residential care have the largest negative impact on patient preference."

Finkelstein, E.A., Bilger, M., et al., 2015, Health Policy	2015	Setting: Singapore Population: Community-Dwelling Adults, Patients Outcome: Choice of package	In-person survey	Random multi-stage sampling for community-dwellers (regions, households, individuals). Patients were purposively selected from outpatient clinics through referrals and direct approach.	854	Mixed logit	"Looking at dominant preference analysis, community dwellers prefer dying at home, being free of pain, and low cost compared to increasing survival. Cancer patients preferred home deaths, greater survival, and less cared about cost. Both groups were averse to poor quality care. There was no significant variation in preferences across levels for amount of care received from family/friends in either sample. Using the mixed logit coefficient estimates, CDOA's stated WTP for one additional life year was S$ 1587 (S$ 1299 to S$ 4379), significantly lower than their WTP to be free of pain (S$ 9358; S$ 4139 to S$ 11,155) but not statistically different from WTP for other EOL attributes given the ranges shown (Table 3). Patient WTP for one additional life year S$ 11,043 (S$ 3061 to S$ 16,426 was higher than that of CDOA, but was not statistically different from patient's WTP to avoid severe pain, to die at home, to not be a burden on family and friends, or to receive a high quality healthcare experience (Table 3). Consistent with our hypothesis, CDOAs WTP was generally lower than the corresponding WTP for patients. There is no statistically significant difference in WTP estimates for extending life by another year between lower and higher income CDOA and lower and higher income patients. Further analyses of the subsamples of respondents who did not have a dominant preference for (low) cost showed that, although the WTP estimates increased as expected, CDOAs had lower WTP for increased survival and other EOL improvements compared to patients. Patients had a higher WTP for all attributes compared to community-dwellers."
Chester, H., Clarkson, P., et al., 2018,	2018	Setting: UK	In-person surveys and	Recruited through memory clinics	147	Multinomial logit model (used conditional logit	"All attributes and levels were found to have a statistically significant impact on respondent choices with p-values smaller

Aging & Mental Health		Population: Users, Caregivers Outcome: Attributes preferred; WTP	online questionnaires	and a carer's organization		model and panel probit model in sensitivity tests)	than the 10% significance level. Findings demonstrated that 'support with personal feelings and concerns – provided by a trained counsellor at home' was judged by respondents as one of the most important attributes together with 'information on coping with dementia – provided by an experienced worker at home'. The findings also showed respondents preferred a service where there were opportunities for social and recreational activities provided by a dedicated worker at home or available through outside organisations. Cost had a significant effect on choice of care package with lower cost packages taking preference. From the marginal willingness-to-pay analysis, the most valued attribute was again 'support with personal feelings and concerns – provided by a trained counsellor at home' for which participants would be willing to pay £31 per week. 'Advice on the use of memory aids – available at a clinic appointment' was relatively less valued, with respondents willing to pay £5 per week for this service."
Lehnert, T., Günther O. H., et al., 2018, The European Journal of Health Economics	2018	Setting: Germany Population: Users, Caregivers Outcome: Attributes preferred; WTP	Mailed and online questionnaires	Households randomly selected from registered phone numbers. At the household level, individuals were randomly selected for inclusion using the Kish-selection grid.	1209	Conditional logit model	"Findings show that all HCBS attributes were relevant to respondents, indicated by statistically significant coefficients. Respondents positively valued more time for care, while co-payment was valued negatively. Respondents thus preferred more time for care at lower costs. The marginal WTP for 30 min of care was €4.49, which corresponds to €8.98/h of care. Contrary to our expectations, respondents did not value HCBS providers with an advanced service profile (offering an extended range of services. Respondents are willing to pay an additional €50.46 to receive care from a HCBS provider with a smaller range of services. Quality of care (QOC) had the strongest overall impact on the utility derived from HCBS. In comparison to

							HCBS with "sufficient" QOC, respondents had a WTP (per month) of €130.70, €233.71 and €429.10 to receive HCBS of "satisfactory", "high" and "very high" QOC, respectively. Finally, respondents clearly preferred regular caregivers (i.e.,, "1–2" different caregivers/month) over a larger number of caregivers (i.e.,, "3–5" and "6–8" different caregivers/month), for which they were willing to pay up to €213.86/month. The differential impact of gender, income, informal caregiving experiences and supplemental LTC insurance on LTC preferences was inconsistent, except for respondents with (high) income, who had a higher WTP for HCBS in general, and higher WTP for high and very high QOC and regular caregivers in particular."
Chu, LW, So, JC., et al., 2014, Geriatr Gerontol Int	2014	Setting: Hong Kong Population: Users Outcome: Attributes preferred; WTP	In-person survey	Not clear	1540	Random-effects probit	"84.0% of respondents were willing to pay an additional cost for nursing homes. The respondents who were not willing to pay an additional cost rated it less important for them to receive end-of-life care in nursing homes compared with those who were not sure if they would pay an additional cost. Only 12.7% of respondents had no preference regarding the location of end-of-life care. Bivariate analyses showed no significant association between these preferences and financial status (on government subsidy or not) or the type of nursing home subvented or private nursing home) the respondent was currently in. The additional cost coefficient was -0.004 (negative sign means prefer lower cost).The additional cost marginal cost (WTP) of the "presence of doctor" was HK$39. Respondents were willing to pay approximately 10 times more for better staff attitudes (HK$379) than better availability of doctor. The marginal WTP (MWTP) for both more coverage of

							doctor's time and better attitude of staff amounted to HK$ $418 (US$54)."
Nieboer, Koolman et al., 2010, Social Science & Medicine	2010	Setting: Netherlands Population: General Outcome: Choice of long-term care package	Online survey	Stratified random sample of members of a panel. Strata were defined by age groups, gender, and education. Recruitment occurred in three rounds.	1082	Conditional logit model	"Had low WTP for one increment in amount of care (addition to a minimum 4 hours a week), room for individual preferences, and punctuality. Had high WTP for transportation, social activities, and a regular care provider. Other preferences differed across the hypotheticals given. All services were of greater importance to a person living alone compared to living with a partner. The difference was most pronounced for the amount of social participation, protected living, coordinated care services, and time on a waiting list. The content of services was more important than delivery for people without a partner, compared to having a partner. The difference was not seen between dementia and frail patient. The value of attribute was determined by combination of dementia status with marital status, with the latter playing a larger role. For demented patient with no partner, high value for having a single care provider, coordinated care services, shorter time on a waiting list, more participation in organized social activities and protected housing. For frail patient, the highest value was on transportation. The results for dementia patients with a partner were mostly comparable with frail elderly with a partner, except that for dementia patients more value was attributed to regular care providers and coordinated care services delivery. For frail elderly with a partner, living independently at home was preferred to moving to an elderly/nursing home, even at extra cost.Stratified by income, those with higher income were willing to pay 30% more for all services except low income groups were willing to pay more for protected housing than were high income groups and the higher income

							preferred care geared to individual preferences over standard care."
Sawamura, Sano, & Nakanishi, 2015, JAMDA	2015	Setting: Japan Population: General Outcome: Preference for long-term care characteristics	Mail-in survey	Selected 8 cities and in each city, randomly selected participants aged 50-65 from Basic Resident Register	371	Conditional logit model	"Participants commonly attached the highest value to facilities where relocation was not required even when their health has deteriorates. The proximity of facilities to their present residence was also given significant value regardless of the allocated diagnosis. Participants in the dementia group emphasized the importance of private rooms and immediate occupancy. Participants in the fracture group did not show significant preferences for these factors. On the other hand, participants in the fracture group gave a negative evaluation when individual choice for daily schedules/meals was unavailable and valued daily interaction with family and friends, whereas participants in the dementia group did not show significant preferences for these."

eTable 1b: Study design

Citation	Review	Pilot testing	Qualit-ative comp-onent	N of choice sets	N of blocks	N of altern-atives	N of attrib-utes	Vignette	Attributes and levels
Kaambwa, B., Lancsar, E., et al., Social Science and Medicine, 2015	N	Y	Y	6	3	2	6	N	- Choice of service provider/caregiver: Single service provider, multiple service providers, multiple service providers plus family - Budget management: the individual, an informal carer, the service provider - Saving unused funds: Save all unused funds, save half of unused funds, not able to save unused funds - Choice of support/care worker: all your support workers, some of your support workers, none of your support workers - Support worker flexibility: fully flexible, partially flexible, inflexible - Level of contact with service coordinator: high contact (monthly), medium contact (contact every 3 months), low contact (every 6 months)
Dixon, S., Nancarrow, S., 2013, Health Expectations,	N	N	N	8	2	2	3	N	- Location: At home, hospital, outpatient, nursing home - Frequency of care: Once per week, three times per week, 7 times per week, 15 times per week - Choice of service provider/caregiver: Support worker, nurse, therapist, doctor
Finkelstein, E.A., Bilger, M., et al.,	Y	Y	Y	8	4	2	7	Y	- Frequency of care: (hours per week) 10, 16, 24, 40 - Expected cost of treatment: 4000, 10 000, 20 000, 40 000 - Severity of pain until death: none, mild, moderate, severe

2015, Health Policy									- Expected length of survival: (months) 4, 6, 10, 16 - Quality of health care experience: very good, good, fair, poor - Source of payment: own out of pocket, family out of pocket, own health savings account, family members health savings account - Place of death: home, institution such as hospital, hospice or nursing home
Chester, H., Clarkson, P., et al., 2018, Aging & Mental Health	Y	Y	Y	18	1	2	7	Y	- Co-payment: 15 euros per week, 30, 44 - Cognitive training: not available, available at clinic, provided by trained worker at home - Education/advice: available in writing on request, available over phone or internet, provided by experienced worker at home - Social engagement: not provide, available through outside organizations, provided by dedicated worker at home - Sensory enhancement/relaxation: not available, available at clinic by helpline, provided when needed at home - Emotional support: not provided, through helpline, trained counselor at home - Daily living assistance: not provided, at clinic by appointment, regularly at home
Lehnert, T., Günther O. H., et al., 2018, The European Journal of Health Economics	Y	?	Y	16	1	2	5	Y	- Co-payment: (per month) €0, €300, €600, €900 - Care time: 30, 60, 90, 120 min/day - Service level: standard, extended - Choice of service provider/caregiver: 1-2, 3-5,6-8 per month - Quality of health care experience: very high, high, satisfactory, sufficient
Chu, LW, So, JC., et al., 2014, Geriatr Gerontol Int	Y	Y	Y	8	1	2	3	Y	- Willingness-to-pay for additional cost: willing to pay, not willing to pay - Doctor on site: current situation, improved situation - Attitude of caregivers: current situation, improved situation
Nieboer, Koolman et al., 2010, Social Science & Medicine	Y	Y	N	256	32	2	10	Y	- Number of hours of care per week: 4 h, 8 h, 12 h, 16 h - Organized social activities: not available, 1 half day per week, 2 half days per week, 3 half days per week - Transportation service: available, not available - Living situation: living independently at home, apartment building in proximity to care, sheltered accommodation, elderly or nursing home - Who provides care: regular care provider, varying care providers - Individual preferences: Standardized care, content of care is determined individually - Coordinated care service delivery: have to arrange a little, have to arrange a lot - Punctuality in max waiting time: 15 mins, 1 h, 2 h, 3 h - Waiting list in months: directly available, 4, 8, 12 - Co-payment per week in Euros: 0, 50, 100, 150
Sawamura, Sano, & Nakanishi, 2015, JAMDA	N	N	N	26	3	2	8	Y	- Availability of individual choice of daily schedule and meals: not available, partially available, entirely available - Regular care staff: Not available, available - Room: Shared (2-4 people), personal room - Main daily interaction: Mostly alone, mostly with staff and other residents, mostly with family and friends - Relocation because of medical deterioration: Necessary, unnecessary - Waiting time: Over 1 year, within 1-year, immediate occupancy - Distance from present residence: forty minutes by car, twenty minutes by car, within walking distance - Monthly fee: 100000 yen, 250000 yen, 400000 yen

Appendix C4: Rapid Review Extraction Form

Questions	Answer	Notes
General		
Citation		Formatting: author's last name, authors first name initial (repeat for each author), journal, year
Publication year		
Title of article		
First author's location		State country, continent from below North America, Europe, Australasia, Southeast Asia, East Asia, Middle East, Africa, Latin America
Study design		○ Experimental, state type: ○ Observational, state type:
Comprehensive literature review done beforehand	○ Yes ○ No	Literature review done comprehensively (i.e., systematic review with search strategy provided)
Stakeholder consultation done beforehand	○ Yes ○ No	Qualitative component
Pilot testing done beforehand	○ Yes ○ No	
Theoretical/conceptual model used		State and briefly describe the theoretical/conceptual model used. Write "not clear" if model used isn't clear. Write "didn't report or use" if one isn't mentioned in paper.
Definition of home care/LTC/elderly care		How did they define or describe homecare/LTC/elderly care in their paper?
Source of funding		
Conflict of interest		"Declared no conflict of interest" "did not declare conflict"
Description of targeted population and area		Who did they want the study to focus on? Where was the sample from (i.e., city, country). Also, state anyone they excluded on purpose.
Research question/purpose of study		
Data Collection		

Primary or secondary data	○ Primary data ○ Secondary data	Primary data: data that has been collected for the research question Secondary data: data was previously collected for another reason but is being used for this study
Method of data collection		Examples: Phone survey, In-person survey, Web survey
Recruitment/sampling		State and describe the approaches used. Examples: social media, describe; online panel, describe; marketing firm, describe; snowball approach, describe; community direct approach, describe:
Data collection period		
Total sample size		This is the sample size they had, not what they expected
Sample size in each group		State sample size and define the groups they had (this is the groups they targeted vs. what they ended up having)
Method of sample size calculation		
Response/participation rate		
Incentivization		
Questionnaire		
Description of questionnaire		Length, categories, language, etc..
Demographic questions asked		List the variables, not the actual questions they asked (usually in first table)
# of questions/versions		
If Observational Study Design		
Design		
Descriptive portion description		Describe what they studied in the descriptive portion of the study
Analytical portion description		Describe what they studied in the analytical portion of the study. What was the model used?
Outcome variable(s)		In the analytical portion of study, what outcomes were studied?
Preference variables		What preferences were studied? Examples include

		preference for language of provider
Covariates in model		What variables were controlled for?
Stratification variables		What variables were used to stratify the results?
Vignette provided	○ Yes ○ No	
Description of vignette		
Other		Anything else about the observational study design that is important to extract?
If Experimental Design		
Number of choice sets/blocks		
Number of alternatives in each choice set		
Number of attributes		
Attributes studied and levels		Examples of attributes: Flexibility, type of service provider, ability to choose service provider, etc. Include interactions
Outcomes studied		Examples: which type of care are you more likely to choose? what are you willing to pay for long-term care? what do you prefer in home care services?
Vignette provided	○ Yes ○ No	
Description of vignette		Include detail on number of vignettes, social/medical condition described, hypothetical person or no, etc.… First, describe the vignette and then if provided, copy and paste the vignette below the description
Design		Describe the design outside of what you extracted above
Analytical approach		Include weighting methods used if any. Include descriptive approach used Include assumptions Include errors

Heterogeneity/sensitivity analysis		
Other		Anything else about the experimental study design that is important to extract? Perhaps information on missing information?
Study sample – descriptive table		
Sex		#/% of males, # of females
Gender		Did they look at gender? If so, how and how many from each gender categories?
Age		
General and/or targeted		Did they study the general population? Did they study a targeted population such as Blacks, women, those living in long-term care, those on social welfare, etc.…
Ethnicity		Did they specifically target an ethnicity group? Did they look at differences across ethnicities? Which ethnicities did they include?
Nationality/immigrant		
Medical condition		What medical conditions did the study group have?
Social status		What was the social status of the study group?
Education		
Other		Anything else?
Results		
Results (narrative)		
Results (main effect)		
Results (interactions)		
Results (measure of uncertainty)		Report sensitivity analysis results here
Other		Any other results that you think are important to extract?
Limitations		
Limitations reported by author		
Limitations reported by us		

Appendix C5: Semi-structured interview guide

Stakeholder Consultation Interview Guide

Introduction script:

Good morning/afternoon. Thanks for taking the time to join me today to discuss the home care, long-term care homes (sometimes called nursing homes), and retirement homes in Ontario and your experiences. My name is [add name here and I am a member of a larger research team from McMaster University. There are a few purposes for today's interview. We would like to discuss with you

- the current context of home care, long-term care and retirement homes in Ontario,
- the future of these institutions in Ontario, and
- the survey tool that we are creating.

You were invited because of your expertise in either one or all of these institutions, elder care in general, and/or health care use of immigrant populations.

Our interview today will be roughly 30 minutes. Please remember that there are no right or wrong answers to my questions. Don't feel like you have to respond to me all the time. Feel free to let me know if you want me to skip a question, repeat a question, speak slower, or if you are having any difficulties in answering me. I am here to ask questions and listen. We will be tape recording the audio of the session because we don't want to miss any of your comments. We will be transcribing the interviews and removing your name and affiliation to maintain anonymity and confidentiality. We have obtained ethics approval to do this study from Hamilton Integrated Research Ethics Board and have received funding from the Social Sciences and Humanities Research Council.

At this time, do you have any questions for me? *[Wait for response]*

By agreeing to continue with the interview, please note that you are providing us your consent to participate in this study. If you agree, please say agree, and if you would like to not participate, state I do not wish to participate.

If they say they agree, the interview begins. If they say they disagree, thank them for their time and interest.

Thank you for agreeing to participate. At this time, I am going to start recording our discussion.

Area	**Question**
Category	We like to begin the interview asking a couple of questions about yourself so that we could properly categorize your responses when doing our analysis. First,

	We are interviewing people who belong to one of four groups: i) service providers, ii) decision makers, iii) researchers and iv) older adults. Which group do you belong to? You can be a part of more than one group.
Sex/gender	What sex/gender do you identify with?
Definition of home care	There are many different types of elder care services and people have a different understanding of them. Broadly speaking, how would you define/describe home care in Ontario?
Definition of long-term care	Broadly speaking, how would you define long-term care/nursing home care in Ontario?
Definition of retirement home	Broadly speaking, how would you define retirement homes in Ontario?
Introduction	Can you please tell me a little about your role or interest in home care, long-term care and/or retirement homes?
Intentions	What are some reasons that someone would prefer one setting over the others?
Trade-offs	What trade-offs do you think people have to make when choosing a care setting? For instance, people may want to choose a setting that is more costly, but it provides culturally appropriate care, and that is more important to them over the price.
Immigrants	Now, thinking about immigrants and ethnic individuals, can you describe what sorts of trade-offs they would be making or what is important to them when looking for care? How are they different than those of the Canadian-born?
Improvements needed	If you could design an elder care model that is better than Ontario's current one, what characteristics would it have and how would it differ from the current model?
COVID-19	What effect do you think the coronavirus pandemic is going to have on the elder care system?

Survey tool	We are creating a survey to investigate preferences for home care and long-term care. Survey participants will be asked to imagine that they are in need of care. They will be given descriptions of the two settings. We will show them different scenarios in which we alter different characteristics of care and asked them which they prefer in order to understand what characteristics are important to them. For instance, would they prefer a home care program with 1-2 home care providers, 10 hours of direct care, and ability to choose type of services provided or long-term care program with 3-4 providers, 5 hours of direct care, and do not have ability to choose type of service. Here is the survey that we have created. What do you think is important for this survey to include in terms of the characteristics and their descriptions?
Wrap-up	Do you have any final thoughts that you would like to share that wasn't mentioned before or anything that you would like to expand on?

Concluding steps:

- Thank participant for their time and for sharing their knowledge and experiences with us • Summarize the main points that came out of the interview and ask whether it is correct, and they are okay with it. If not, ask them if there is any comment that they would like to change
- Ask participant if they know of anyone who we can contact to interview

Appendix C6: Quotes to support qualitative findings

Theme 1: Limitations and barriers of the existing system

"Government in Ontario still considers Home Care separate from long-term care from nursing homes and that creates further divisions, misunderstandings, misalignment between care at home and care at institutions...from a system point of view, we have put too many resources into nursing homes and not enough into home care. That goes back to my point in a little bit how we have disintegrated systems-where home care is under a different ministry and regulatory scheme than nursing homes are, which creates a divide in the way government programs are administered and the way Ontarians think about the services except home care gets saddled off not as much invested in though as long-term care" (male, researcher)

"The home care system in Ontario is really fragmented and you know it doesn't matter when one service provider tries to take over all the services it is still usually fragmented. There's no central point it's not integrated well with primary care. Um you know some care coordination is integrated with primary care but um on the whole the service providers are not well integrated with primary care. And it's very tasked focused. Um, it's not in place for preventative its more for primary prevention or for health promotion its more treat and discharge, or minimize complications and discharge and uh you know its time sensitive. So, you it's very much like fee for service where you know your very task driven and the health professional is limited on what they can actually provide in that period of time" (female, provider)

"It [Long-term care] seems much more organized because you have a number of homes that are mandated to provide those services and it's limited to those. So, it's much more streamlined" (female, decision-maker)

"People are more aware and focused on long-term care/nursing home than they are on home care because there is a clearer path to universally provided health care than home care. I think a lot of people see it as I would kind of age at home for as long as I can until something happens, and my family doctor convinces me about long-term care then I will go to a nursing home. It will be there and available" (male, researcher)

"Home Care is still largely a promise rather than a program that most people can rely on. So, if we are looking at it from Ontario perspective on average if you are deemed eligible for publicly funded home care you are not getting more than 2 to 3 hrs a week no matter how much you might need" (male, researcher)

"So, it's a mixture of everything. If you have more money, there's a better chance of finding a good place with services. Some homes do offer services, some additional services like health services. But these come with a cost so if you are less fortunate. Chances are you're probably living in a home that has become a retirement home by default because it's all seniors living there now but you don't have any services" (female, decision-maker)

“But the problem is that the hospital budgets continue to increase. And so, acute care, and other aspects of care require greater amounts of increasing funding. And so, we have never really come across, what are potential solutions. And nobody's really talking about social insurance plans that will cover costs right now the elderly population. And so, homecare even from the healthcare setting perspective, gets limited focus budget” (male, provider)

“If you're going to get a plot of land that you can build a large long-term care home in an urban environment that is going to cost hundreds of millions of dollars” (male, provider)

“Long term care is very expensive if you want maximum service level. If you are sharing the room (for two people), still, it is expensive because you don’t get the privacy and the service. The charge is high if you go for another extra service. If you choose like a basic standard bedroom in a long term care, overall, at the end of the month, you are paying something similar as a private bedroom in long term care. If you go with the private residence home care, it is very expensive. If you take another 4-hour service or something and pay from your pocket, it is still very expensive” (male, older adult)

Theme 2: People do not have choices

“ So usually you put your name on a list three to five to seven years ahead of time before you're actually going to get into a long-term care home. So, what determines that for to a large extent is what happens in the hospital. So, when they become acutely ill from an episodic illness. And then all of a sudden, the hospital decides okay we're triaged based on acuity to illness and ability to take care of people in the home environment” (male, provider)

“The long and short is that most people who do have to go onto the LTC waiting list are waiting years if they are in a fairly stable state. Um, if they are critical then their choice and decision of which home they’re going to is um, is filtered a little bit more. So their choice is not there. Um, I mean they have the choice list at what they’ve put on but if a bed become available at say their third choice that’s where they have to go if they are in crisis. They can move to their first choice later on down the road but um when your when it’s really urgent they have to go to where the first bed is available” (female, provider)

“ I had eight places on my list. And it's not like you have a choice. Choice is the wrong word. You can put all the names you want on a list and you can put one name on the list but your odds of getting your top priority home. The place Bob ended up was my eight choice and I tapped it on at the end because nobody else would take him. But I got a recommendation from somebody I knew. They said, “here's a place you probably never heard of, it's not really close but it's a good home.” I put it on the list and that's the one that had the opening and would take him” (female, older adult)

“Like people don’t want to go to LTC that is not where they want to go. That is not their choice. It’s more of my health needs have gotten to a certain state, or, I can’t be supported anymore where I want to be, or, I can’t remain in my retirement home. So, I have to go to LTC. Or you know sometimes cognitively they might not even be aware of it and then you have to do a capacity assessment because they just have these safety issues that they can’t remain on their own or even with some support. Then you have to do capacity assessment and then they have to go to LTC. So

there's a lot, you know I don't think ever met anyone who even wanted to go to LTC. But you know when your choices are limited and the amount of assistance that you need is there , um, then LTC is where you have to go" (female, provider)

"Long-term care in Ontario is more for people aged about 75 with a lot of limitation like chronic diseases. Maybe other health limitations like dementia or anything like that. People provide clinical care, as well as other social services or other kind of care so they can have better lives" (male, provider)

"And I think the other part is a very big right now is wait times to move into long-term care. It's very, very big backlogged especially for the dementia units that I, I've worked in there are very long wait comes to getting in. So, it's a problem. Isn't it. It's not like you always have a choice. So I don't think people always have that choice. They may not get the place that they want" (female, provider)

"The reality though is that there isn't a lot of alternatives for many people, and some people whose loved ones are in long-term care it's not by choice. It's not like you can say well I choose not to put them into long-term care because for many people, they don't have the family, the unpaid family supports that can support that person's need in long-term care. So the care needs are very, very high. Especially for those who have physical needs and need two person transfers. So care person's with advanced dementia need 24 hours a day monitoring. You can't expect realistically families to manage that" (female, provider)

Theme 3: Preferences for and between eldercare settings

" I think variety, everything for a good service, even though the language is more important for them. But they need good services, so most of them would trade the quality of care for language, accessibility of this kind of service which is limited. So, they don't have the choice to navigate the anglophone care. For example, even though they have to have a caregiver who will do the interpretation. They already need the quality of care. And if they are not sure to get that or are to wait longer for that , they will trade the quality of care or accessibility of care" (male, provider)

"And in terms of the quality of life, nursing homes or long-term care homes have more. I mean they provide a higher acuity and they're geared for doing much more for their patients" (male, provider)

" When choosing Long-term Care specifically, they will choose quality, that's for sure. And it will they will choose the settings, the establishment itself - the building. The living environment. If they live in the home doesn't look appealing to them. they will not choose that own. You will find that there are a longer wait list to go to the newer homes versus the older homes because of that" (female, decision-maker)

"I think somebody who likes to be at home but don't have anybody, any relatives or friends nearby, may have to compromise because of their needs to go and live in a long-term care home" (female, older adult)

“I've had other doctors and other people say, I would not send my loved one to long-term care home. And that is because, one, they've got large extended families, for example, and the informal care tasks can be taken up by numerous members of the family, compared to I want to say Canadian born, probably have smaller nuclear families. Last extended family because taking care of elderly people involves labor and labor is expensive” (male, provider)

“If you have good social connections and the community or extended family then it's unlikely to go into and do many informal care tabs to go into retirement home” (male, provider)

“And I think in the community just the state of the care partners, the unpaid care partners, the ability to support that person in the home setting it's very different if you have a frail older care partner that just can't manage a lot of the care needed versus large families, very supportive, that can come in and help. It also depends on what those care needs are, right, because certainly physical transfers is very hard for families to manage that. And with advanced dementia, sometimes there are aspects of dementia that are very challenging for families to manage. So I think just depends on each case is very individual” (female, provider)

“It's not like you can say well I choose not to put them into long-term care because for many people, they don't have the family, the unpaid family supports that can support that person's need in long-term care. So the care needs are very, very high. Especially for those who have physical needs and need two person transfers. So care person’s with advanced dementia need 24 hours a day monitoring. You can't expect realistically families to manage that” (female, provider)

“Many people don't have family support for whatever, a myriad of reasons. And so that while they may have a preference to have family support them four hours a day, that's not going to happen. That's not even an option, they may prefer that. But most of our kids are working full time jobs they have family so their own and unless you know they put on a granny flat and I move in. There's no way that that can happen” (female, older adult)

“they wanted the amenities of retirement home. The retirement home cost $11,000 or $12,000 per month. This was a very nice retirement home. The long-term care because authorized by the government. Other aspects of it is $2500 a month. So there's a big price differential. And I, you know, when people talk about the trade-offs. I think one of the big trade-offs is actually around price” (male, provider)

“I've had patients who are doctors provide for their parents, nursing home level of care in the home, but it's almost as expensive as it is in a retirement home because the labor costs associated with having a nurse, and having somebody” (male, provider)

“I think the traditional idea of a retirement home is, it is something of a luxury that if you can afford you will want to downsize your home. You want a little of assistance but you don’t want to be penniless when you live in a retirement home. I think there is still a slightly negative attachment to them and largely due to the cost. In Ontario I think the average cost of a decent retirement home is $6,000 to $10,000 a month. So, it is seen as inaccessible by most people” (male, researcher)

"We have a very inequitable system, where, for example, I could afford to pay someone, somebody coming into my home as many hours as I could pay for. … People have a right to a private room in a long-term care facility. They may prefer that they but may not be able to afford it. So, we believe in a one tier medical health system even though it doesn't always work out that way. But I believe that there needs to be more subsidy to allow everybody to be on an even playing field so that they can have their preferences respected. If they have other cultures, than what are our system is set up with, that needs to be addressed. So, there's money and there's the reality of people's lives and whether in fact these preferences can, can be actualized" (female, older adult)

"If I think about myself, then first thing is sharing a room or a bathroom is a big problem. When you don't have your own home, you still need to have a room or a bathroom. Second is the cultural sensitivity of whoever is living there. Like you said before, food, language and other people from the similar culture, if they are around, it would be easier. If the location of the long-term care is not too isolated, that would help, I think" (female, older adult)

"If it's like so many people, it might be they want me to go there but if there is no one else and everyone is busy with their own life, then there is a no choice but to go to the long-term care. The reason why we can, is that we can pay the basic service. And if we need more, it might be that people can help financially or you can rely on the government after that. That's why the people are choosing long term care. Or maybe there is more privacy, different environment. People may like if really there is good environment" (male, older adult)

Theme 4: Culturally adapted care

"Well, they want services in their language. Preferably with someone that they feel a connection with and having to build that connection. Having some cultural elements like language and other things makes it easier. So, if they have some staff that speak Dutch and they're Dutch, it's better to go there, than going to the other home where they don't speak your language because you feel a connection. And immigrants, they are looking to that as well because Long-term Care is a living environment as well. It's where you will spend next two three years. Hopefully, so you want to be comfortable, you want to make friends and you probably will know other people. And maybe that's a way as well to entice them to cope. Because if they know that Mrs. such and such is there, and they like her and are friends with her, it will be more natural choice to go there because they know people there. Before we move on, maybe you can actually say that if you look at cultural homes, we do have some across Ontario. There are some like there's a Mennonite home in Leamington. There are Chinese homes in Toronto. And because it really answers the cultural needs, it's like a continuation of their community and the people need that" (female, decision-maker)

"In my own experience, though, and again I work primarily with persons with advanced dementia. It's a challenge, it's not - it to me good cares good care, and often in dementia care It's, there's some really, really basic principles of, of how one uses non-pharmacological approaches and uses you know, compassionate person centered care, knowing a bit more about that person, about the things that are important, things that they value, activities they value, and we do as much as we can to try to support that. Language is sometimes difficult and issue especially if persons are reverting back to their first language and English is not well understood. I know in my own long-term care facilities, they do their best to have staff that do PSW supports that should be matched

to the person's background as much as possible. It's not always possible. So we do our best and it doesn't mean that that care is substandard for immigrant populations, but there are additional challenges, no doubt. And I know that is a concern for families for sure, as well" (female, provider)

"If you have cultural preferences, sometimes they – there's limitation on who you want coming into your home. Like say you're very religious or very personal and you don't want, like you're a female and I'm a male you don't want me helping with the shower or vice versa" (male, older adult)

"I don't think they are patient centric at this point in time because there is a huge gap in providing culturally competent care, culturally-sensitive care, and care in a variety of languages that really represent the makeup of what our province is currently" (female, provider)

"The big focus that we have on that sort of difference is how do you provide a more culturally appropriate services, food and approaches that respect where people are coming from. Not because it is the right thing to do but because it provides better care. If you can't communicate with someone. Whether it is in English, French or a different language then you are not able to provide good care then I think there has to be a much bigger focus on culturally appropriate services, food, offering, communities are coming from. If you cannot age at home then try and make the nursing home feel more like home" (male, researcher)

"There's not a lot of choice if you are looking for a culturally specific home. I think there's only like 50, um yea 50, that service some kind of cultural aspect. And then you think about how many different cultures there are. Um, and especially if you're looking primary language and then you've got different dialects of language, whether or not you're going to be able to communicate and how far away your family is to kind of be able to intervene and help communicate for you. I mean those are all real big challenges...If you can't speak and you don't understand what's going on and you can't relate to the other residents, if they're in LTC or retirement, then you know what sort of quality of life do you have? So I - I there's not a lot of choice there. And then you're put on a different list if you're going to a LTC home that's truly specific, you still have to wait for that. But then it closes how many you can apply for because there only so many that are culturally designated" (female, provider)

"If I talk about my culture, South Asian, for us it is a big taboo, going to long term-care or retirement home. For whatever reason you go, it is a big no-no in our culture. For the kids and the person who is going. It is kind of a social stigma to go to such places whether it is more comfortable or less comfortable, that is beside the point. I think in our culture, the parents and the kids from the beginning of their life, they understand that the older parents will live with them. In a way, all of us, we believe that having grandparents around is a positive influence on the kids. So, traditional living is quite accepted and common in our culture. So, I believe other cultures also have their thinking" (female, older adult)

Theme 5: Covid-19 will influence people's preferences

"From public's point of view, the survey we have done shows that they are much more hesitant now about going into long-term care now than they are even before. In pre-Covid years, 75% of

Canadians would say they want to age at home no matter what. On our latest surveys we are looking at 100% and the number one reason is that Covid opened their eyes to the challenges that long-term care is currently facing" (male, researcher)

"There's a lot of stigma that's attached to it. People don't want to go there. You know because it's not aesthetically pleasing and because its associated with -this is the last stage of my life- and this is where I'm going to live out the remainder of my days" (male, researcher)

"I think the pandemic will have a big impact on the number of people and the way we think about moving into a long-term care home. Maybe not the people themselves but the family, about putting their loved one into a long-term care home. Because there's a lot of concern with all those deaths that happened in the first few weeks. People are really concerned about going in there. They're afraid that - "okay, I'm really putting my loved one into a place to die, they're not safe there". So, I guess the long-term care system will have to build the credibility back and make sure that it is actually safe" (female, decision-maker)

"There's a lot of press about taking your loved one out of long-term care now and that's not just it's just not a realistic option for many. So I don't think that anyone, any people - I don't think people are more eager to put people into long-term care and certainly there's a lot of concern and fear that COVID 19 has brought in. Just the idea of being in a congregated care facility where any infection can spread more quickly" (female, provider)

Theme 6: Aging at home phenomenon

"Everyone wants to age where they are. They want to be in their own homes, close to your community, having access and services you are used to. Maybe it is a religious community etc. You to have your independence to live your life the way you always have so then the question is if that is not possible what do you want?" (male, researcher)

"Most people that live in Ontario that I have spoken to and surveyed see long-term care as a last resort. It is like I will go there. It is a lot cheaper than paying for 24hr nursing care which I can't afford. I don't want to be a burden to my family so I will go there but I think most people are looking for that solution which lets them stay at home for as long as possible" (male, researcher)

"But at the same time, the seniors, most of them would love to live in their home instead of going to a certain place" (male, provider)

"at least on the Francophone side, people want to stay at home until they die. That's where they want to die. Unfortunately, at one point, it may become difficult and taking care of a huge house because that's the reality. It becomes a challenge so many of them will decide to move to retirement home because it's smaller, and they have access to some services, if they want, like meals and things like that. And they don't have to take care of the lawn, you don't have to take care of shoveling and things like that. So, some of them will decide to go to this type of settings. For those that remain at home, if they need, they will ask for home care services depending on the intensity of their health needs. They may be eligible for home care services that are paid by the government to Home and Community Care Services. Otherwise, they may decide to pay on their own for some

help. It could be for house cleaning, things like that. If they really need services and they cannot no longer live at home, they only have one other option - to go to long-term care home or someone could take them in, like their children could decide to bring them to their home. But we find that with split families, children living far away from their parents, it is less likely to happen. Seniors likely end up in a long-term care home. So usually, long-term care is more of a necessity than choice really" (female, decision-maker)

"I think that the preferences is of course for people to stay in their own homes with their own support their family and community support. To my knowledge, there's no older adult who doesn't want that. So the goal has always been to try to maintain people in the community for as long as possible" (female, provider)

"Most of the time it is because their needs outstrip the supports and services that could be provided realistically in the retirement home setting. Generally speaking, I think people with earlier stage conditions, earliest stage dementia, and physical care needs that are minimal can live in retirement home setting, as long as they have the finances to support it, versus long-term care. And maybe the necessity if the needs are higher than what can be provided in the retirement home setting" (female, provider)

"So I think that the preference the strong preference, as I mentioned, is for people to stay in their own homes in their own environment that they're comfortable with the family and friends and community for as long as possible. That would be my overwhelming experience, not - Most people don't want to move, unless they have to" (female, provider)

"I do think that there needs to be more supports in the home setting, I think there are many, many examples, across the world, particularly in Europe and many studies that show that care in the community is less expensive than care in long-term care Institute
in congregate settings. And, again, most people want to be in their own home. So, I think that more support in the community, that truly meets the needs of people: having things like overnight respite, having more support through the day, having day program, more support for the day program. And again, I'm speaking, primarily persons that have dementia" (female, provider)

"I would say, first and foremost and this is particular to many of our Burlington residents, is that they would like to stay in Burlington. Most do not want to go to another region. That's probably because they've been born and raised or live, you know, for the past 50 years or so in Burlington. They want to be or remain close to their families. So, that that would be the biggest thing. And then other than that, it's just to ensure that them or their loved one have somebody that can address their specific care needs" (female, provider)

"Like I said, in my situation, if I have to leave home, I hope it would be in the state of mind where I don't realize what is happening" (female, older adult)

"There are a lot of things you are already used to with the home environment. So your routine life will go as normal, compared to in that age you cannot change yourself very quickly and you cannot transform your behavior or your whatever, your life. You cannot change it in a new environment. Second thing, you know people around you, so you don't need to go for new friends or new

contacts and you continue with your routine life. And I prefer Home Care, just call the people for the service. Maybe the people living with you, they must probably take care of you" (male, older adult)

Theme 7: Improvements are needed

"And one suggestion she had was, if we could pay like a neighbor of her mom to spend an hour or two to visit her mom. She could be able to stay longer in her home. So, I'm not sure if it's something that you're interested in looking into, other options that people are thinking about, because that's something that I find that we don't look into very much" (female, decision-maker)

" I do think that there needs to be more supports in the home setting, I think there are many, many examples, across the world, particularly in Europe and many studies that show that care in the community is less expensive than care in long-term care Institute in congregate settings. And, again, most people want to be in their own home. So, I think that more support in the community, that truly meets the needs of people: having things like overnight respite, having more support through the day, having day program, more support for the day program...Overnight respite is fantastic and I think there's – that- that should be developed further. That would help to avert those, you know excess caregiver stress that leads to crisis, that leads to need for move into long-term care" (female, provider)

"I don't think it's great to put people into long-term care before they need that. If it's only because they can't afford retirement home, you know, to me it makes sense to have, have some other way, some other place, places that people can live that are subsidized that aren't as exorbitant in terms of cost" (female, provider)

"And I think there's a tendency as well to move away from those giant box and care facilities to smaller, more homy. There's lots of different models in other countries and I think looking towards some of the smaller home like settings that they give less, less of an institutional feel" (female, provider)

"Would say that what could be done is rather than providing incomplete care, you can look at the whole family as a unit. And help them out in whichever way you can. Not only the patient but the family is cared for also, their need. It could be more practical to do that so they are not overwhelmed by the care of the elderly person. So in whatever way, assistant can be provided to the family, not only to the patient" (female, older adult)

"I think long term care can be improved a lot more regarding the quality of food, the quality of care. Some sensitivity towards it" (female, older adult)

"Everyone gets the private room actually, first of all, that's the very first suggestion. And they put the same cost for everyone… No discrimination, no another room, anything else, everyone has a privacy private room. And then after, the service is a different thing. Who needs service can take it individually, that I can suggest" (male, older adult)

Appendix C7: Survey Questionnaire

In this survey, we are interested in learning about your preferences for long-term care homes (also called nursing homes) and home care.

We will ask you two sets of questions:

1) questions on home care and long-term care homes
2) questions about yourself such as your ethnicity and health status

There are no right or wrong answers to any of the questions.

Before we begin, here are some background questions in order to determine eligibility for this survey.

What is your gender?

- Male
- Female
- Other

Are you now, or have you ever been a landed immigrant or refugee in Canada?

- No
- Yes

What is your age (in years)?

_____

What province or territory do you live in?

- Alberta
- British Colombia
- Manitoba
- New Brunswick
- Newfoundland and Labrador
- Northwest Territories
- Nova Scotia
- Nunavut
- Ontario
- Prince Edward Island
- Quebec
- Saskatchewan
- Yukon

Do you currently live in a long-term care home (also called nursing home)?

- No
- Yes

What is your household annual income from all sources, before taxes?

- $ 0 or less than $24,999
- $25,000 – $49,999
- $50 000 - $74,999
- $75,000 - $99,999
- $100,000 - $124,999
- $125,000 – $149,999
- $150,000 or more

You are writing a "care plan" for your hypothetical future. The key decision you must make now is whether in the future you will:

Move into a *long-term care/nursing home*, or
Stay in your current residence and *receive home care*.

Your Hypothetical Situation

Imagine you have **mild-level dementia**, which affects your memory, language, judgement, and limits your control of your bodily functions. You are 80-years-old, not working, and not allowed to have a driver's license. You need help with daily tasks such as dressing and cooking, as well as with medical tasks such as taking prescription drugs. You only have partial control of your toileting – you have occasional stooling and urination accidents and wear diapers (pull-ups). On a bad day you cannot change your own diaper. If English is not your first language, you find it difficult to communicate in English (even if you were once fluent).

Since you may need support at any hour, you have family/a spouse/a very good friend close by who can help you with some daily activities, but that person also has health problems and needs support.

Everything else is exactly as you expect it to be in your "real life" when you are age 80.

Either a *long-term care home* OR *home care* are appropriate for your hypothetical future situation, but … you need to **decide which you prefer**. Here is some information on each.

Long-term care homes (nursing homes)
Assistance with daily activities such as toileting, changing diapers, and bathing, as well as meals, snacks, cleaning and some recreation are provided in a long-term care home. Most tasks are performed by personal support workers (also called nurses' aids). Long-term care also provides 24/7 emergency nursing care, routine nursing care such as administering medications, and occasional access to a range of other staff. There is always someone nearby in case there is an emergency. Given your condition, you will receive direct one-on-one care for 2 hours per day.

Costs for long-term care homes are paid partly by residents, but mostly by the government. Assume, for this hypothetical plan, that you do not qualify for financial assistance from the government for the resident's portion of the costs because your income is not low enough. (Only

very low-income residents have their costs paid, and only for a standard room.) Prices are the same across Ontario and are set by the government, but private rooms cost more than semi-private rooms, and semi-private rooms cost more than standard rooms.

If you request to live in a long-term care home, a government-assigned case worker will assess your application. Although your (future hypothetical) mild dementia diagnosis makes you eligible for long-term care, many applicants to long-term care homes have higher needs so you would not be at the top of the priority list.

Wait time: After approval, you must wait for a bed to become available. In your application you can list up to five homes that you would be willing to move to – some may be far away. The more flexible you are, the shorter the wait time.

Culturally-adapted care: There are a few homes with culturally-adapted care where most staff speak your native language. They tend to have longer wait times.

Distance to extended family and friends: The distance between a long-term care home and where your family and friends live may be an important factor for you.

Home care

Home care offers services in your private home, including in a retirement home. It provides access to routine nursing care, such as administering medications, and assistance with daily activities, such as bathing and food preparation.

If you request home care services, a government-assigned case worker will assess your medical and personal care needs to determine eligibility for hours provided, at no cost to you, by the government. Given your (future hypothetical) mild-level dementia, you are eligible for 2 hours of home care per day paid for by the government. During this time, personal care support workers, or occasionally a nurse, will provide assistance with activities such as preparing some basic meals, toileting, bathing and your medical needs. Government provided home care does not include payments for rent, mortgage or food costs.

If you want/need more hours than what the government pays for, or any other services, you have to pay for them yourself. For instance, you may need to hire someone to help with shopping, cooking meals, cleaning your home and/or home maintenance.

Culturally adapted care: Your government-assigned case worker or private agency (if you purchase additional services) will try to match you to workers who meet your language and/or cultural needs, but such individuals may not always be available.

Wait time: Wait time is common. The wait time for culturally adapted care by staff who speak your native language and/or know your cultural or religious preferences is usually longer.

We will present several pairs of "scenarios" and ask you to decide which option you prefer.

Each scenario is a package and items cannot be added or removed. When deciding between long-term care home and home care, you have to make trade-offs between different characteristics.

Each set of two scenarios differs in terms of the following 7 characteristics:

1. **Type of accommodation**

Long-term care home

- Standard bedroom (shared bedroom and washroom with up to 4 residents)
- Semi-private bedroom (single bedroom with a shared washroom)
- Private bedroom (single bedroom with a private washroom)

Home care

- Your private residence in the community

2. **Hours of care**

Long-term care home

- 24-hour access to emergency care, with 2 hours of one-on-one care

Home care

2 hours of government paid care per day, plus…

- 0 hours/day paid yourself (total =2 hours/day)
- 4 hours/day paid yourself (total =6 hours/day)
- 6 hours/day paid yourself (total =8 hours/day)

3. **Your care team** (both long-term care home and home care)

- Greater rotation of staff (more people, more part-time)
- Less rotation of staff (same people, more full-time)

4. **Culturally adapted care** (both long-term care home and home care)

- Receive culturally adapted care
- No culturally adapted care

5. **Wait-time** (both long-term care home and home care)

- No wait-time
- 1 month
- 6 months
- 2 years

6. **Distance to family/friends**

Long-term care home

- A 20 to 30-minute drive for your family/friends to visit
- A 1 to 1.5 hour drive for your family/friends to visit

Home care

- Live in my home in the community, either alone or with family/friends as in my "real" life

7. **Price per month** (both long-term care home and home care)
- $0
- $2000
- $3000
- $8000

Please note that these prices are hypothetical and are not intended to reflect current practice.

Each scenario comes as a package with no substitutions. You need to select the scenario/package you prefer. Please pay careful attention to differences in the characteristics and consider the whole scenario when making your decision. Also, assume that the two scenarios are similar for all characteristics not listed, such as service quality.

Choose scenarios that are BOTH realistic to your situation (e.g., choose ones that you will be able to afford), and that you prefer.

Prices may vary for both long-term care homes and home care (the government sets and can change prices).

- In a long-term care home, you are paying for accommodation.
- In home care, you are paying for "extra" hours of care each day.

We understand that choosing between the two scenarios may not always be easy, and you may like some characteristics of a scenario and dislike others, but your answers will show us what is most important to you. Please remember that there are no right or wrong answers.

Example Choice Set

Below is an **example** of a choice set. There are two scenarios, long-term care and home care, which differ in seven characteristics. The scenarios are presented in table format.

	Long-term care (LTC) home	**Home care**
Type of accommodation	Standard room	My residence in the community
Number of hours of professional care per day	24-hour access to emergency nursing care and 2 hours of one-on-one care	0 hours that I purchase privately and pay for myself and 2 hours paid for by government (total hours=2 hours/day)
Care team	Less rotation of staff (same people, more full-time)	Greater rotation of staff (more people, more part-time)
Culturally-adapted care	No culturally-adapted care	Have culturally-adapted care
Wait-time	0 months	1 month
Distance to family/friends	20 to 30-minute drive for my family/friends to visit	Live in my home in the community

Price per month	$2000	$0

In the long-term care home option (left-hand column), you have access to emergency nursing care for 24 hours with 2 hours of direct one-on-one care while living in a standard room. Also, you see the same staff members daily, many of whom work full-time. You do not have culturally-adapted care. You do not wait to move. You have family/friends who live close enough to you that they can drive 20 to 30 minutes to visit. For this, you pay $2000 per month.

In the home care option (right-hand column), you receive 2 hours of one-on-one care in your private residence (perhaps a retirement home) with the cost of home care fully covered by the government. You see several staff members, many of whom work part-time and rotate often. You have culturally-adapted care. You wait 1 month before you start receiving services. For this, you pay $0/month.

You will be asked the question:
"**If these are the only options, which would you choose**?
and asked to select **one** option.

I prefer:
- Long-term care home
- Home care

Before proceeding, we want to make sure that we were able to present the hypothetical scenario clearly.

1. What medical condition are you told you have in the <u>hypothetical</u> scenario?
- **Diabetes**
- **Hip fracture**
- **Dementia**
- **Cardiovascular disease**

Thank you. Next, we present choice sets similar to the previous example. For each set, please tell us which option you prefer. Remember that there is no right or wrong answer – we are interested in learning your preferences.

When answering, please remember you are planning for when you will be 80-years-old and have mild-level dementia and need help with daily activities (i.e.,, toileting) and medical tasks.

Everything else is exactly as you expect it to be in your "real life" when you are age 80. So, please consider your financial and social situation when answering.

Assume that long-term care and home care are the only options and that staff quality is the same. Please be aware that these scenarios may not reflect the current care environment – for example, prices may vary from current norms.

Block 1 Choice Set 1

	Long-term care (LTC) home	Home care
Type of accommodation	Private bedroom	My residence in the community
Number of hours of professional care per day	24-hour access to emergency nursing care and 2 hours of one-on-one care	6 hours that I purchase privately and pay for myself and 2 hours paid for by government (total hours=8 hours)
Care team	Greater rotation of staff (more people, more part-time)	Less rotation of staff (same people, more full-time)
Culturally-adapted care	Have culturally-adapted care	No culturally-adapted care
Wait-time	0 months	6 months
Distance to family/friends	20 to 30-minute drive for my family/friends to visit	Live in my home in the community
Price per month	$2000	$3000

If these are the only options, which would you choose?

I prefer:
- Long-term care home
- Home care

Block 1 Choice Set 2

	Long-term care (LTC) home	Home care
Type of accommodation	Standard bedroom	My residence in the community
Number of hours of professional care per day	24-hour access to emergency nursing care and 2 hours of one-on-one care	6 hours that I purchase privately and pay for myself and 2 hours paid for by government (total hours=8 hours)
Care team	Less rotation of staff (same people, more full-time)	Greater rotation of staff (more people, more part-time)
Culturally-adapted care	No culturally-adapted care	Have culturally-adapted care
Wait-time	1 month	6 months
Distance to family/friends	1 to 1.5- hour drive for my family/friends to visit	Live in my home in the community
Price per month	$3000	$3000

If these are the only options, which would you choose?

I prefer:
- Long-term care home
- Home care

Block 1 Choice Set 3

	Long-term care (LTC) home	**Home care**
Type of accommodation	Private bedroom	My residence in the community
Number of hours of professional care per day	24-hour access to emergency nursing care and 2 hours of one-on-one care	6 hours that I purchase privately and pay for myself and 2 hours paid for by government (total hours=8 hours)
Care team	Less rotation of staff (same people, more full-time)	Greater rotation of staff (more people, more part-time)
Culturally-adapted care	Have culturally-adapted care	No culturally-adapted care
Wait-time	24 months	0 months
Distance to family/friends	1 to 1.5 hour drive for my family/friends to visit	Live in my home in the community
Price per month	$0	$8000

If these are the only options, which would you choose?

I prefer:
- Long-term care home
- Home care

Block 1 Choice Set 4

	Long-term care (LTC) home	**Home care**
Type of accommodation	Semi-private bedroom	My residence in the community
Number of hours of professional care per day	24-hour access to emergency nursing care and 2 hours of one-on-one care	0 hours that I purchase privately and pay for myself and 2 hours paid for by government (total hours=2 hours)
Care team	Less rotation of staff (same people, more full-time)	Greater rotation of staff (more people, more part-time)
Culturally-adapted care	Have culturally-adapted care	No culturally-adapted care

Wait-time	1 month	6 months
Distance to family/friends	20 to 30-minute drive for my family/friends to visit	Live in my home in the community
Price per month	$3000	$0

If these are the only options, which would you choose?

I prefer:

- Long-term care home
- Home care

Block 1 Choice Set 5

	Long-term care (LTC) home	**Home care**
Type of accommodation	Standard bedroom	My residence in the community
Number of hours of professional care per day	24-hour access to emergency nursing care and 2 hours of one-on-one care	6 hours that I purchase privately and pay for myself and 2 hours paid for by government (total hours=8 hours)
Care team	Greater rotation of staff (more people, more part-time)	Less rotation of staff (same people, more full-time)
Culturally-adapted care	No culturally-adapted care	Have culturally-adapted care
Wait-time	24 months	0 months
Distance to family/friends	20 to 30-minute drive for your family/friends to visit	Live in my home in the community
Price per month	$0	$8000

If these are the only options, which would you choose?

I prefer:

- Long-term care home
- Home care

Block 2 Choice Set 1

	Long-term care (LTC) home	**Home care**
Type of accommodation	Private bedroom	My residence in the community

Number of hours of professional care per day	24-hour access to emergency nursing care and 2 hours of one-on-one care	0 hours that I purchase privately and pay for myself and 2 hours paid for by government (total hours=2 hours)
Care team	Less rotation of staff (same people, more full-time)	Greater rotation of staff (more people, more part-time)
Culturally-adapted care	No culturally-adapted care	Have culturally-adapted care
Wait-time	24 months	0 months
Distance to family/friends	20 to 30-minute drive for my family/friends to visit	Live in my home in the community
Price per month	$0	$0

If these are the only options, which would you choose?

I prefer:
- Long-term care home
- Home care

Block 2 Choice Set 2

	Long-term care (LTC) home	**Home care**
Type of accommodation	Semi-private bedroom	My private residence in the community
Number of hours of professional care per day	24-hour access to emergency nursing care and 2 hours of one-on-one care	4 hours that I purchase privately and pay for myself and 2 hours paid for by government (total hours=6 hours)
Care team	Greater rotation of staff (more people, more part-time)	Less rotation of staff (same people, more full-time)
Culturally-adapted care	No culturally-adapted care	Have culturally-adapted care
Wait-time	1 month	6 months
Distance to family/friends	1 to 1.5-hour drive for my family/friends to visit	Live in my home in the community
Price per month	$0	$8000

If these are the only options, which would you choose?

I prefer:
- Long-term care home
- Home care

Block 2 Choice Set 3

	Long-term care (LTC) home	Home care
Type of accommodation	Standard bedroom	My residence in the community
Number of hours of professional care per day	24-hour access to emergency nursing care and 2 hours of one-on-one care	0 hours that I purchase privately and pay for myself and 2 hours paid for by government (total hours=2 hours)
Care team	Greater rotation of staff (more people, more part-time)	Less rotation of staff (same people, more full-time)
Culturally-adapted care	Have culturally-adapted care	No culturally-adapted care
Wait-time	24 months	0 months
Distance to family/friends	1 to 1.5 hour drive for your family/friends to visit	Live in my home in the community
Price per month	$3000	$0

If these are the only options, which would you choose?

I prefer:
- Long-term care home
- Home care

Block 2 Choice Set 4

	Long-term care (LTC) home	Home care
Type of accommodation	Semi-private bedroom	My residence in the community
Number of hours of professional care per day	24-hour access to emergency nursing care and 2 hours of one-on-one care	6 hours that I purchase privately and pay for myself and 2 hours of care paid for by government (total hours=8 hours)
Care team	Less rotation of staff (same people, more full-time)	Greater rotation of staff (more people, more part-time)
Culturally-adapted care	Have culturally-adapted care	No culturally-adapted care
Wait-time	24 months	1 month
Distance to family/friends	20 to 30 minute drive for your family/friends to visit	Live in my home in the community
Price per month	$3000	$3000

If these are the only options, which would you choose?

I prefer:
- Long-term care home
- Home care

Block 2 Choice Set 5

	Long-term care (LTC) home	**Home care**
Type of accommodation	Standard bedroom	My residence in the community
Number of hours of professional care per day	24-hour access to emergency nursing care and 2 hours of one-on-one care	4 hours that I purchase privately and pay for myself and 2 hours of care paid for by government (total hours=6 hours)
Care team	Less rotation of staff (same people, more full-time)	Greater rotation of staff (more people, more part-time)
Culturally-adapted care	Have culturally-adapted care	No culturally-adapted care
Wait-time	0 months	6 months
Distance to family/friends	20 to 30 minute drive for my family/friends to visit	Live in my home in the community
Price per month	$0	$8000

If these are the only options, which would you choose?

I prefer:
- Long-term care home
- Home care

What would your preference be if you were selecting between **two home care programs**?

	Home Care Program A	**Home Care Program B**
Type of accommodation	My residence in the community	My residence in the community
Number of hours of professional care per day	0 hours that I purchase privately and pay for myself and 2 hours of care paid for by government (total hours=2 hours)	0 hours that I purchase privately and pay for myself and 2 hours of care paid for by government (total hours=2 hours)
Care team	Less rotation of staff (same people, more full-time)	Less rotation of staff (same people, more full-time)
Culturally-adapted care	Have culturally-adapted care	Have culturally-adapted care

Wait-time	6 months	1 month
Distance to family/friends	Live in my home in the community	Live in my home in the community
Price per month	$3000	$0

If these are the only options, which would you choose?

I prefer:
- Program A
- Program B

Thank you for sharing your preferences.

Did we present the choice sets clearly?

The choice sets were….
- Completely clear (Choice sets were clearly stated)
- Mostly clear
- Moderately clear
- Mostly unclear
- Completely unclear (Choice sets were NOT clearly stated)

If the quality of long-term care homes and home care are similar, what would you prefer given your hypothetical condition?

I prefer:
- Long-term care home
- Home care

Please forget the hypothetical description presented earlier – we are now interested in learning more about you and your opinions.

Thinking about your opinions on long-term care homes before the pandemic and now, has your willingness to live in a long-term care home changed?

- Far more willing to live in long-term care home after Covid
- More willing to live in long-term care home after Covid
- Equally willing to live in long-term care home after Covid
- Less willing to live in long-term care home after Covid
- Far less willing to live in long-term care home after Covid

A growing percentage of Ontario's population is over age 65.

For each of long-term care homes and home care, the government of Ontario can either

- **Keep the system as it is, so that services per person over age 65 decline as the population ages,**
- **Slowly increase services in line with population aging, or**
- **Increase service delivery faster than population aging to improve services per person over age 65.**

Of course, each option has implications for the taxes that need to be paid, and one way to fund any increase in services is to increase the GST/HST. It is currently 13%.

[Randomize 50% to each path]

[Path 1]

LONG-TERM CARE HOMES: which option would you prefer?
(Example: Option A implies that the number of long-term care home beds would remain constant, so the number of beds per person over age 65 would decline as the population ages, and the GST/HST would remain constant at 13%.)

	Number of Long-term care Home Beds	Number of Beds per person over age 65	GST/HST
a)	Stay constant	Decline	Stay at 13%
b)	Slow increase	Constant	Increase to 14%
c)	Fast increase	Increase	Increase to 15%
d)	Not sure		

HOME CARE: which option would you prefer?
(Example: Option A implies that the total number of home care visits would remain constant, so the number of visits per person over age 65 would decline as the population ages, and the GST/HST would remain constant at 13%.)

	Total Number of Home Care Visits	Number of visits per person over age 65	GST/HST
a)	Stay constant	Decline	Stay at 13%
b)	Slow increase	Constant	Increase to 14%
c)	Fast increase	Increase	Increase to 15%
d)	Not sure		

[Path 2]

HOME CARE: which option would you prefer?
(Example: Option A implies that the total number of home care visits would remain constant, so the number of visits per person over age 65 would decline as the population ages, and the GST/HST would remain constant at 13%.)

	Total Number of Home Care Visits	Number of visits per person over age 65	GST/HST
a)	Stay constant	Decline	Stay at 13%
b)	Slow increase	Constant	Increase to 14%
c)	Fast increase	Increase	Increase to 15%
d)	Not sure		

LONG-TERM CARE HOMES: which option would you prefer?
(Example: Option A implies that the number of long-term care home beds would remain constant, so the number of beds per person over age 65 would decline as the population ages, and the GST/HST would remain constant at 13%.)

	Number of Long-term care Home Beds	Number of Beds per person over age 65	GST/HST
a)	Stay constant	Decline	Stay at 13%
b)	Slow increase	Constant	Increase to 14%
c)	Fast increase	Increase	Increase to 15%
d)	Not sure		

An alternative to increasing the GST/HST to pay for new services is for the government to borrow the money so that future taxpayers pay for these services. In order to pay for care for seniors today, would you prefer the Ontario government to:

a) Increase taxes today (no borrowing)
b) Borrow today (no tax increase)
c) Let services per senior decline (no tax increase & no borrowing)
d) Don't know

In the last (short) part of the survey, we will ask background questions about you and your household for statistical purposes. This will not be shared or used to identify you.

Again, please forget the hypothetical description we presented earlier at this time – we are interested in learning more about you and your household.

For some questions, we are looking for one answer. However, others ask you to "check all that apply" and a few answers are allowed.

Section 1: Personal Questions

What year were you born?
- XXXX
- Prefer not to answer

***At any time during the past three months, were you employed (or self-employed)?**
- No
- Yes, part-time (less than 35 hours per week)
- Yes, full-time (35 or more hours per week)
- Prefer not to answer

What is your marital status?
- Married or common-law
- Widowed, separated, or divorced
- Single, never married
- Prefer not to answer

What language do you speak most often at home these days? [Check all that apply]
- English
- French
- Other, specify: ____
- Prefer not to answer

What is the highest educational certificate, diploma, or degree that you have completed?
- Less than high school diploma or its equivalent
- High school diploma or a high school equivalency certificate
- Trades, diploma, or degree from community college
- University bachelor's degree
- Professional or graduate degree above bachelor's
- Prefer not to answer

Where were you born?
- Canada
- United States
- Australasia (e.g.,, Australia, New Zealand, Fiji)

- East Asia (e.g.,, China, Hong Kong, Vietnam, Philippines, Japan, Thailand, Indonesia)
- Middle East and North Africa (e.g.,, Iran, Iraq, Israel, Oman, Turkey, Algeria, Egypt)
- South Asia (e.g.,, India, Sri Lanka, Pakistan, Bangladesh, Nepal, Afghanistan)
- Europe and Central Asia (e.g.,, United Kingdom, France, Ireland, Romania, Denmark, Netherlands, Russia)
- Sub-Saharan Africa (e.g.,, South Africa, Sudan, Ethiopia)
- Latin America and Caribbean (e.g.,, Brazil, Colombia, Guyana, Mexico, Jamaica)
- Other, specify: ___
- Prefer not to answer

If you were not born in Canada, in what year did you <u>first</u> come to Canada to live?

- XXXX
- I was born in Canada
- Prefer not to answer

People living in Canada come from many different cultural and racial backgrounds. Are you…? <u>[Check all that apply]</u>

- White/Caucasian
- Chinese, Filipino, Japanese or Korean
- South Asian (e.g.,, Indian, Pakistani, Sri Lankan)
- Black
- Hispanic or Latino
- Southeast Asian (e.g.,, Cambodian, Indonesian, Laotian, Vietnamese)
- West Asian (e.g.,, Afghan, Iranian)
- Arab
- First Nation (North American Indian), Métis, or Inuk (Inuit)
- Other, specify: _____
- Prefer not to answer

What is your total annual <u>personal income</u> from all sources, before taxes?

- $ 0 or less than $24,999
- $25,000 – $49,999
- $50 000 - $74,999
- $75,000 - $99,999
- $100,000 - $124,999
- $125,000 – $149,999
- $150,000 or more

Section 2: Household Questions

Whom do you live with in your household? <u>[Check all that apply]</u>

- Spouse/partner
- Children
- Grand-children
- Other family
- Friends

- Live alone
- Others, specify: ____
- Prefer not to answer

What type of residence do you live in?

- Apartment or condominium
- Town-home
- Co-op
- Semi-detached or detached house
- Retirement home
- Prefer not to answer

Section 3: Health Status

We define health as not only the absence of disease or injury but also physical, mental and social well-being. In general, how would you describe your health?

- Excellent
- Very good
- Good
- Fair
- Poor
- Prefer not to answer

***In the past year, were you, a member of your household and/or an immediate family member (your partner, parent, or child) infected by the Coronavirus (Covid-19)?**

- No
- Yes, confirmed with a diagnosis
- Probably, showed symptoms but did not get a positive diagnosis
- Do not know
- Prefer not to answer

How many chronic health conditions (for example, diabetes, high blood pressure or depression) do you have for which you take regular, daily medication and/or regularly visit a health care provider?

- 0
- 1 to 3
- 4 to 6
- 7 or more
- Prefer not to answer

***Do you have dementia?**

- No
- Yes, confirmed with a diagnosis
- Probably, show symptoms but do not have a diagnosis
- Do not know
- Prefer not to answer

Section 4: Service Use

***In the past six months, have you received any home care services for which you or the government paid? [Check all that apply]**

- No
- Yes, I received them
- Yes, household and/or an immediate family member received them
- Do not know
- Prefer not to answer

***Have you considered long-term care or retirement homes in the last five years for yourself and/or someone you know? [Check all that apply]**

- No
- Yes, retirement home
- Yes, long-term care home
- Prefer not to answer

***In the past year, have you been hospitalized?**

- No
- Yes, once
- Yes, twice or more
- Prefer not to answer

***If you were to fall sick or not be able to function normally, do you know of someone who could help you on a daily basis?**

- No
- Yes
- Do not know
- Prefer not to answer

If you were to fall sick right now and require care that is not covered by provincial health insurance (e.g.,, OHIP), how would you pay for the services? [Check all that apply]

- Self-funded
- Family-funded
- Community organization
- Private insurance
- Governmental assistance (i.e.,, subsidies, employment insurance)
- Other, specify: ____
- Do not know
- Prefer not to answer

How would you rate your knowledge of the health care system for seniors in Ontario?

- Poor
- Fair
- Good
- Excellent
- Prefer not to answer

Chapter Five: Conclusion

The purpose of this dissertation was to advance the literature on health, health care, and economic experiences of immigrants in Canada using theoretically guided vigorous empirical methods, all while filling research gaps and addressing high-priority policy issues affecting immigrants. To meet this goal, in this dissertation, I investigated a) the influence of neighbourhood immigrant concentration on mental health problems and mental health service use among immigrant children and youth in Ontario, b) the impact of cardiovascular and cerebrovascular health shocks on multiple income variables in various immigrant groups of working age in Canada, and c) older adults' preferences for home care and long-term care in Ontario. This chapter begins by summarizing the main findings from each of the three original studies presented in chapters 2-4. It then highlights the substantive, methodological, and theoretical contributions of each of the studies followed by their policy implications. It then presents the strengths and limitations of this dissertation as a whole. Finally, this chapter ends with a discussion of ideas for future academic research.

5.1 Summary of findings

Chapter 1 showed that compared to non-immigrant children and youth, immigrants had lower odds of having elevated mental health problems and lower odds of using mental health services after adjusting for elevated mental health problems. Interaction analysis showed that for both immigrants and non-immigrants, the probability of having elevated mental health problems and using mental health services decreased as immigration concentration increased. However, the rate of decline was different between immigrants and non-immigrants. For elevated mental health problems, the rate of decline was slower for immigrants and for mental health services use, the rate of decline was greater. In terms of what results were statistically significant, non-immigrant children and youth showed significantly lower odds of having elevated mental health problems in immigrant-dense neighbourhoods while immigrant children/youth had significantly lower odds of reporting mental health services. Furthermore, the study showed that 3% and 12% of the variation in mental health problems and mental health service use was at the neighbourhood level. Even higher than neighbourhood effects, 54% and 51% of the variation in mental health problems and mental health service use was at the household level, respectively.

Chapter 2 examined the impact of cardiovascular and cardiovascular health shocks on employment income, governmental income, total income, and household income, in heterogenous immigrant populations in Canada, one to five years after the shock, compared to the impact of other types of health shocks. This investigation found that the impact of a cardiovascular or cerebrovascular health shock on income variables, on average, was not statistically different than the impact of other types of health shocks on the comparison group, across the years. In terms of the regression coefficients, results showed that relative to the comparison group, those who experienced a cardiovascular or cerebrovascular health shock had $440 - $1436 more employment income and $424 - $1794 total income between one and five years after the shock compared to one year prior to the shock. Relative to the comparison group, on average, those who experienced a cardiovascular or cerebrovascular health shock had more governmental income in t+1 (i.e., one-year post-shock), and then had lower governmental income in years t+2, t+3, t+4 and t+5. Albeit,

the difference in governmental income was not large between the two groups. On the other hand, results showed that relative to the comparison group, those experiencing a cardiovascular or cerebrovascular health shock had lower household income one year and two years after the shock, but had higher income in years t+3, t+4 and t+5. Again, the difference in household income between the treatment and comparison group was not very large and was statistically not significant. Graphical results showed that there was an initial reduction in earnings immediately after the shock in both treatment and comparison groups, and over time, earnings increased and then plateaued. Total income, on the other hand, continuously increased, perhaps because other sources of income slightly increased over time such as governmental income. Household income also plateaued over time.

Chapter 3 explored older adults' preferences for home care and long-term care and its characteristics (e.g., wait time, room type, culturally adapted care) using a discrete choice experiment. Results showed that participants were willing to pay $4017 per month [95% CI: $3120, $4914] more for home care than long-term care. Attributes that were highly preferred were having culturally adapted care, private room, and short distance between long-term care home and family/friends. Lower wait-time was also preferred but not to the same extent. A semi-private room was not preferred while participants were indifferent about hours of home care provided and the rotation of staff members. Stratifying the results by immigrant status generally showed there to be a minimal to no difference in effect sizes between immigrants and non-immigrants. Looking at the few differences between the two groups, it appeared that a semi-private room was preferred more by non-immigrants than immigrants. On the other hand, private rooms were preferred more by immigrants. Immigrants also showed greater utility for shorter distance to family and friends compared to greater distance than non-immigrants did. Stratifying the results by sex demonstrated that females showed greater utility for home care than long-term care homes. They also displayed lower utility for long wait-times and greater utility for a short distance to family and friends. Lastly, when comparing the probabilities for selecting home care and long-term care in different scenarios, it was seen that quality was an important factor in determining preferences. Rather than always preferring home care or long-term care, the setting with the higher quality had the greater probability of being selected.

5.2 Substantive contributions

This dissertation provided original research that both filled research gaps in the field of immigrant health research (chapters 1 and 3), and applied an immigrant health perspective to old research (chapter 2). Chapter 1 presented how household and neighbourhood immigration variables influence mental health outcomes, independently and in interaction. It showed the importance of adjusting for contextual factors that are associated with mental health and mental health service use to sparse out the different relationships between variables. It also reiterated that when investigating mental health service use in immigrants, mental health need must be adjusted for since immigrants have lower rates of reported mental health problems that must be considered. By using multi-level modelling, it highlighted the degree of variation in elevated mental health problems and mental health service use that is due to household and neighbourhood-level factors. To my knowledge, while the influence of ethnic concentration on mental health status has been studied previously, this was the first study to research the influence of immigration concentration on mental health services use among immigrant and non-immigrant children and youth.

Chapter 4 highlighted the preferences of immigrants and non-immigrants for older care settings and characteristics in Ontario. Conducting a review prior to creating the questionnaire showed that a discrete choice experiment exploring community members' preferences for home care and long-term care had not been conducted in Canada, and preferences of immigrants had not been elicited anywhere, internationally. This study thus advanced the academic scholarship in these areas. Furthermore, although recent surveys in Ontario had shown that there was a public preference for home care over long-term care, this study was able to quantify how much people valued home care over long-term care, which is a unique contribution of this study. The study was also able to add that in certain situations, people are willing to choose long-term care. Among the attributes studied, the study also highlighted which attributes of care were highly preferred. It also showed how preferences differed slightly between immigrants and non-immigrants as well as between males and females. Furthermore, the qualitative analysis in this study highlighted four important attributes that people consider when selecting a care setting: quality, safety, cost, and family and social support. It also highlighted that in the current context, people do not have much choice and there are multiple barriers to accessing and utilizing the system. Findings from this chapter can support the development of policies and programs that target home care and long-term care reform as well as person-centered care.

Studying the impact of a health shock on earnings in Chapter 4 was not novel. I contributed to the literature, however, by investigating how the impact differed across heterogenous immigrant samples such as immigrant class and source country. I was also able to show that immigrants displayed a different trajectory compared to the general Canadian population (previously studied in Garland et al. (Garland et al. 2019a)) post-shock in that earnings increased after year two of the shock as opposed to decrease as previous literature showed. This suggests that immigrants continue to work after the shock, adding to the narrative that Canadian immigrants greatly contribute to the labour market. In addition, by using a dataset that linked landing files and tax data with hospitalization data, I also had a unique dataset that compared the effect of multiple types of shocks. In other words, I was able to see that the impact of a cardiovascular health shock was not significantly different than the impact of other shocks such as a vehicle accident. Also, it was seen that in both the treatment and comparison groups, total individual income and governmental income increased year to year, but employment income and household income plateaued. This means that a cardiovascular or cerebrovascular health shock, on average, impacted the potential growth in individual and household earnings. This chapter thus challenged what is known about the impact of health shocks on earnings in the literature and highlighted that multiple income variables ought to be included when investigating the economic impact of health shocks on individuals.

5.3 Methodological contributions

This dissertation provides an example for how to conduct interdisciplinary and intersectoral research. The three original chapters used three different methodological approaches that were best suited to the research questions and data. In Chapter 2, multi-level modelling was used to study the associations of variables at individual-, household-, and neighbourhood-levels with mental health outcomes, using an epidemiological cross-sectional survey. In Chapter 3, a difference-in-difference analysis was used to study the economic causal impact of a health shock with propensity

score matching to ensure that the treatment and comparison groups were comparable, using a linked-administrative longitudinal dataset. Chapter 4 explored preferences of community members using the mixed-methods design of a discrete choice experiment. It included sequentially conducting a rapid review of the literature, conducting qualitative interviews with stakeholders, and implementing a quantitative survey. Chapter 4 can provide guidance to future studies in health policy as discrete choice experiments, having originated in marketing, are only now being applied in the health sector to understand preferences of present and future patients, caregivers, and providers. They are an especially useful tool to use when administrative health care and/or sociodemographic data are limited (Janssen et al. 2017). Moreover, determining willingness-to-pay estimates and conducting predicted probability analysis revealed and quantified underlying hierarchy of preferences, which is challenging to do with older quantitative research methods used in health services research.

The thesis also took a life course perspective by focusing on children and youth in chapter 2, working-age adults in chapter 3, and older adults in chapter 4. Furthermore, in all of the chapters, stratification analysis was conducted in consideration of intersectionality theory and the literature on social determinants of health that suggests that the health status and patterns of health service use among immigrants are influenced by an intersection of factors such as sex and length of time in Canada (i.e., recent immigrant vs. long-term immigration) (Bauer et al. 2021; Chang 2019; Patel et al. 2019; Viruell-Fuentes, Miranda, and Abdulrahim 2012). Conducting such analysis, for example, showed that females had a stronger preference for having a private room in a long-term care home than males did, as indicated by a higher willingness-to-pay. The combination of theory, methods, and analysis utilized in this dissertation can guide future research projects that explore heterogeneity in effects among immigrant populations.

5.4 Theoretical contributions

Generating new theory was not the purpose of this dissertation. That being said, this dissertation used novel frameworks and strategies that could be applied to future research. Drawing from epidemiology, health economics, and the fields of immigrant and mental health research, Chapter 1 conceptualized the associations and interactions between individual, household, and neighbourhood level variables, including variables relevant to migration experiences and social determinants of health. The study also positioned intersectionality theory within the person-environment theory, integrating the two as they share points of commonalities. Furthermore, Chapter 2 expanded the literature on the effect of health shocks on income by not only studying the effect on earnings, but also the effect on total individual income, government income, and household income. By doing so, it demonstrated that although earnings plateaued after the health shock, total income increased over time post-shock, possibly due to an increase in governmental income and other sources of income. It set the framework for these relationships to be explored further. Lastly, as mentioned before, there was limited data and empirical research on use and preferences for home care and long-term care in Ontario, specifically of immigrants. This study presented variables such as wait time and culturally adapted care that can be used in empirical models to explain use of home care and long-term care services.

5.5 Policy Implications

Before suggesting policy implications, it must be reiterated that single studies were conducted which had their limitations and were focused around specific research questions. More research is needed to make stronger policy recommendations. That being said, through chapter 2, it was seen that household immigrant status was associated with lower elevated mental health problems and lower mental health service use after adjusting for mental health problems. This implies two points. First, access to mental health services among immigrant children and youth ought to be improved. This could be through a number of ways such as implementing culturally tailored programs and outreach initiatives, increasing number of interpreters in mental health care settings, or informing primary care physicians and community providers about the low use of mental health services among immigrant children and youth and ensuring they have the resources to be able to help. Second, it is not only important to minimize the challenges that immigrants face via immigrant-targeted policies and programs, it is imperative that strengths-based approaches are implemented that focus on factors that are reported to be protective (e.g., ethnic identity, resiliency) among immigrant children and youth given their low odds of having mental health problems.

Furthermore, results showed that as immigration concentration increased, the probability of using mental health services decreased among immigrants, after adjusting for mental health problems. It highlights the need to improve mental health services access in immigrant-concentrated neighbourhoods. This could be done by initiatives such as increasing funding to mental health treatment programs in these areas or working with community members in immigrant-concentrated neighbourhoods to spread awareness about existing mental health programs. In addition, the fact that non-immigrants showed lower odds of having elevated mental health problems in immigrant-concentrated neighbourhoods suggests that mixed neighbourhoods with respect to migrant status may be beneficial for mental health.

Chapter 3 found that the impact of cardiovascular or cerebrovascular health shocks was not statistically different than the impact of other types of shocks such as vehicle accidents or cancer. These findings, given that the study did not look at health shocks in silos, has different implications for prioritization of policies and programs compared to that reported in previous studies. More than outcome-specific recommendations, it suggests that rehabilitation guidelines and policies should consider the vulnerability of populations. Specifically, the results highlight that females, migrants from the US, and recent immigrants were more sensitive to health shocks and should be focused on when designing and implementing programs and policy.

In addition, the study found that over time, individual and household income seemed to plateau after the health shock in both the treatment and comparison groups. For policy and programming, it implies that individuals who experience a severe health shock may need support in overcoming an income plateau in those years, especially if they are younger in age. This is because if they had not experienced a health shock, they may have continuously seen a growth in income over their lifetime. To provide support, individuals can be navigated to appropriate employment and social organizations as a part of their rehabilitation program.

Furthermore, the study showed that governmental support increased each year, on average, after the health shock for both the treatment and comparison groups. This can prove to be costly for the government if the number of individuals who experience a health shock increases with increasing population. To prevent hospitalizations and the occurrence of health shocks, upstream approaches should be prioritized.

A major contribution of Chapter 4 was that it showed that participants were willing to pay $4017 per month to have home care as opposed to long-term care, when they were 80-years old and had mild-level dementia. This shows that when given the choice, people highly prefer home care over long-term care. This finding has implications for supply-side policies that need to consider increasing funding to home care given the high demand for it. It also means that home care staffing ought to be prioritized.

Moreover, since the relative importance of attributes of home care and long-term care were quantified in this study, the findings provide other policy-relevant information as well. For instance, the study showed that having culturally adapted care was valued by both immigrants and non-immigrants. This indicates that care programs ought to meet cultural preferences and that the government should consider hiring and training diverse health care professionals. Private rooms were also preferred, suggesting that newer homes should be designed to have more private rooms. Increasing number of private rooms would not only increase residents' privacy but can improve safety and care for residents. Policymakers should also consider that for the long-term care system, it may imply that beds in basic rooms remain unoccupied, causing inefficiencies. This could affect the revenue of homes, which in turn could have other implications (e.g., reducing revenue will cause owners to reduce number of staff members which will impact care). This, however, does not mean that the solution is allowing hospitals to transfer patients to any long-term care homes with unoccupied beds that are not of patient's choosing. This is a policy that is currently being legislated in Ontario. Participants in this study in fact showed that living close to their family and friends was a high priority for them. Instead, policymakers could consider increasing the number of homes that a potential client can list on their application (at this time, patients can list up to five long-term care homes in their application). Attributes that were associated with a high willingness-to-pay such as short distance to family/friends as well as key themes that emerged from the qualitative aspect of this chapter can be utilized as stakeholder input to co-design a care system that is person-centered and equitable.

Furthermore, using simulation exercises, the study showed that when the best long-term care option was offered with the worst home care option, the probability of selecting long-term care was higher. When both home care and long-term care had the worst characteristics, there was no significant difference in probabilities of selecting home care or long-term care. This not only shows that people's demand for long-term care will also increase for certain situations, people will demand high-quality care. This finding confirms that Ontario Health should continue to sustain and support quality improvement initiatives across home care services and long-term care homes. Also, organizations should ensure that quality improvement is embedded within their work.

5.6 Strengths of this research

Certain strengths of this program of research need to be highlighted. Firstly, as a whole this dissertation addressed many novel and important issues affecting immigrants from the influence of neighbourhood immigrant concentration on mental health service use in children and youth to home care and long-term care preferences among older adults. These policy issues have become even more prominent now than when this research was initiated with the Covid-19 pandemic. The implementation of Ontario Health Teams also acts as a policy window to create policy change for which these studies have timely implications. Second, multiple methods were used for data collection and analysis, both quantitative and qualitative, that best suited the research questions. It not only resulted in a more comprehensive understanding of immigrant health and health care experiences, it highlighted the strengths and limitations of each of the methods, providing guidance for future research.

Third, Chapters 2 and 3 incorporated large and comprehensive datasets that were best suited for the posed research questions. Chapter 2 used data from the 2014 Ontario Child Health Study (OCHS) which is the most comprehensive mental health epidemiological study conducted in Ontario to-date, with a large sample size of 10,802 children and youth. In OCHS, the sampling strategy that was utilized allowed contextual influences to be studied. Also, the data had several variables on both mental health problems and mental health services use which allowed me to first study the influence of immigrant concentration on the association between immigrant status and elevated mental health problems and then subsequently study the influence on mental health service use after adjusting for mental health problems, in the same study sample. Some previous studies that showed low mental health service use in immigrants without adjusting for mental health need may be biased because immigrants show low mental health needs. The dataset also allowed for a comprehensive definition of "mental health service use" that incorporated formal and informal services. Moreover, Chapter 3 used an administrative longitudinal linked dataset that included health care, immigration, and tax data. As such, the data set was comprehensive and rich with data that allowed me to do subgroup analyses and avoid biases that are common with self-reported surveys. It's longitudinal design also allowed me to investigate temporal pathways, and have confidence that the income variables were exogenous. The dataset also focused on immigrants exclusively, that too from across the country, making the findings highly generalizable to the immigrant population in Canada.

Lastly, an interdisciplinary approach was taken in this dissertation, applying concepts from epidemiology, health economics, experimental economics, public health, gerontology, and sociology. It allowed for an holistic understanding, which is much needed to tackle complex problems.

5.7 Limitations of this research

This dissertation focused on multiple research areas using multiple methods, under the umbrella of immigrant health research. While with its broad scope, I was able to address different priority areas, the dissertation suffers from limitations that come with using self-reported data,

administrative data, or experimental data without using triangulation and conducting studies in silos. Similar to how in Chapter 4, results from the quantitative survey were supported by findings from the literature review and qualitative interviews, multiple research methods and datasets can be used for each research question to corroborate the findings found.

Another limitation of this dissertation stems from the constraints faced in increasing sample size of immigrants. Both in chapters 2 and 3, some effects were statistically not significant. With a small sample size, it was difficult to know confidently whether there was no association between the variables, or whether the lack of statistical significance was due to the sample size. Even in chapter 4, Leger's (i.e., the polling company used to sample participants) immigrant panel was exhausted. Having low sample of immigrants hindered the possibility of conducting subgroup analyses. This problem is not new to researchers who conduct immigrant research as immigrants have low rates of participating in surveys relative to non-immigrants. With growing immigrant population, it highlights that new strategies need to be implemented to increase immigrant-relevant data. Only by doing so will we be able to understand more fully the extent of the problems faced by immigrants and how they can be addressed by policy.

5.8 Future research priorities

To advance the program of research initiated in this dissertation and align with growing policy issues, future research can focus on the below.

Chapter 2 showed that immigrant children and youth showed lower odds of using mental health services and that 13% and 52% of the variation in mental health service use was at the neighbourhood and household levels, respectively. This goes to show the importance of continuing to understand the relationship between factors at individual-, household-, and neighbourhood-levels and mental health service use. Ethnic concentration or income status of a neighbourhood can perhaps explain mental health rates and mental health service use of immigrant children and youth. In addition, the Covid-19 pandemic has exacerbated mental health problems in children and youth, and has made it difficult to access mental health services (Cost et al. 2022; Racine et al. 2021; Saunders et al. 2022; Shields et al. 2021). Future research can determine the interaction of Covid-19 with various migration and sociodemographic factors and its association with mental health.

To elaborate on the study findings from Chapter 3 and make it more generalizable, data from non-hospitalized individuals and/or non-immigrants can be added to the dataset to know whether the impact of a cardiovascular or cerebrovascular health shock is different between those who have a shock and those who are healthy and between immigrants versus non-immigrants. With a larger dataset, the relationship between the different income variables can be explored further including impact of the shock on spousal income. One can also study the impact of cardiovascular and cerebrovascular health shocks separately, and replicate the study for other types of health shocks.

Thinking about Covid-19 recovery and the rapidly growing aging population in diversity and size, it is crucial to prioritize home care and long-term care research, and ensure an equity perspective is always included. The immediate next step is to look at the heterogeneity in preferences for home care and long-term care using the data collected on sociodemographic factors and conduct latent

class analysis. Next, studies can elicit preferences on home care and long-term care independently in order to elicit greater detail and evaluate the attributes which are not comparable between the two. Preferences of caregivers, current clients, and providers can also be elicited. It would be interesting to investigate how caregivers evaluate attributes of care as opposed to patients. Moreover, the estimates can also be used to conduct revealed choice experiments and the medical and social context in the hypothetical scenario can be altered. Lastly, since the demand and costs for home care and long-term are increasing, making the current system unsustainable, it is important to know people's opinions about financing these systems.

As Canada and other countries plan recovery from Covid-19 pandemic, all while tackling other conflicts such as climate change, immigration continues to rise, emphasizing the need for research on the health and health care experiences of immigrant populations. Conducting research with an equity focus that includes the immigrant perspective will help to create evidence-informed policies that will prepare and strengthen the health care system, as well as improve the health and health care experiences of immigrants.

5.9 References

Abelson, Julia et al. 2018. "Uncertain Times: A Survey of Canadian Women's Perspectives toward Mammography Screening." *Preventive Medicine* 112(April): 209–15. https://doi.org/10.1016/j.ypmed.2018.04.021.

Ahmad, Farah et al. 2016. "Burden of Common Mental Disorders in a Community Health Centre Sample." *Canadian Family Physician* 62(12): e758–66.

Akiva, Moshe Ben, Daniel McFadden, and Kenneth Train. 2019. "Foundations of Stated Preference Elicitation: Consumer Behavior and Choice Based Conjoint Analysis." *Foundations and Trends in Econometrics* 10(1–2): 1–144.

Akresh, Ilana Redstone. 2006. "Occupational Mobility among Legal Immigrants to the United States." *International Migration Review* 40(4): 854–84.

Alam, Khurshid, and Ajay Mahal. 2014. "Economic Impacts of Health Shocks on Households in Low and Middle Income Countries: A Review of the Literature." *Globalization and Health* 10(1).

Alegría, Margarita, Kristine M. Molina, and Chih Nan Chen. 2014. "Neighborhood Characteristics and Differential Risk for Depressive and Anxiety Disorders across Racial/Ethnic Groups in the United States." *Depression and Anxiety* 31(1): 27–37.

Alexandre, Pierre Kébreau et al. 2008. "Predictors of Outpatient Mental Health Service Use by American Youth." *Psychological Services* 5(3): 251–61.

Althubaiti, Alaa. 2016. "Information Bias in Health Research: Definition, Pitfalls, and Adjustment Methods." *Journal of Multidisciplinary Healthcare* 9: 211–17.

American Psychiatric Association. 2013. "Diagnostic and Statistical Manual of Mental Disorders." https://psychiatryonline.org/doi/book/10.1176/appi.books.9780890425596 (June 14, 2022).

Anderson, Bridget, and Scott Blinder. 2019. "Who Counts as a Migrant? Definitions and Their Consequences." *The Migration Observatory*. https://migrationobservatory.ox.ac.uk/resources/briefings/who-counts-as-a-migrant-definitions-and-their-consequences/ (August 27, 2022).

Anderson, J G. 1973. "Health Services Utilization: Framework and Review." *Health services*

research 8(3): 184–99. http://www.ncbi.nlm.nih.gov/pubmed/4593850%0Ahttp://www.pubmedcentral.nih.gov/articlerender.fcgi?artid=PMC1071757.

Arango, Celso et al. 2021. "Risk and Protective Factors for Mental Disorders beyond Genetics: An Evidence-Based Atlas." *World Psychiatry* 20(3): 417–36.

Arya, Akshaya Neil, and Thomas Piggott. 2018. *Under-Served: Health Determinants of Indigineous, Inner-City, and Migrnt Populations in Canada*. ed. Canadian Scholars. Toronto.

Aryal, Komal et al. 2021. "Nursing Home Resident Admission Characteristics and Potentially Preventable Emergency Department Transfers." *Journal of the American Medical Directors Association*. https://doi.org/10.1016/j.jamda.2021.11.020.

Axelrad, Hila, Erika L. Sabbath, and Summer Sherburne Hawkins. 2018. "The 2008–2009 Great Recession and Employment Outcomes among Older Workers." *European Journal of Ageing* 15(1): 35–45.

Baek, Kelly et al. 2021. "Factors Influencing Formal and Informal Resource Utilization for Mental Distress Among Korean Americans in Southern California." *Journal of Immigrant and Minority Health* 23(3): 528–35. https://doi.org/10.1007/s10903-020-01050-1.

Bailey, Rahn Kennedy, Holly L. Blackmon, and Francis L. Stevens. 2009. "Major Depressive Disorder in the African American Population: Meeting the Challenges of Stigma, Misdiagnosis, and Treatment Disparities." *Journal of the National Medical Association* 101(11): 1084–89.

Balintic, Vanessa. 2022. "Advocates, Critics Warn Ontario's Planned Changes to Long-Term Care Are a Violation of Patient Rights." *CBC News*.

Barnes, Steve. 2016. *Health Care Access for the Uninsured in Ontario Symposium Report*. https://www.wellesleyinstitute.com/wp-content/uploads/2017/01/Health-Care-Access-for-the-Uninsured-Symposium-Report.pdf.

Baroud, Evelyne et al. 2019. "Suicidality among Lebanese Adolescents: Prevalence, Predictors and Service Utilization." *Psychiatry Research* 275(March 2019): 338–44. https://doi.org/10.1016/j.psychres.2019.03.033.

Barwick, Melanie et al. 2013. "Profiles and Service Utilization for Children Accessing a Mental Health Walk-In Clinic versus Usual Care." *Journal of Evidence-Based Social Work* 10(4): 338–52.

Bauer, Greta R. et al. 2021. "Intersectionality in Quantitative Research: A Systematic Review of Its Emergence and Applications of Theory and Methods." *SSM - Population Health* 14(April): 100798. https://doi.org/10.1016/j.ssmph.2021.100798.

Beiser, Morton. 2005. "The Health of Immigrants and Refugees in Canada." *Canadian Journal of Public Health* 96(SUPPL. 2).

———. 2010. "Predictors of Emotional Problems and Physical Aggression among Children of Hong Kong Chinese, Mainland Chinese and Filipino Immigrants to Canada." *Social Psychiatry and Psychiatric Epidemiology* 45(10): 1011–21.

———. 2011. "Regional Effects on the Mental Health of Immigrant Children: Results from the New Canadian Children and Youth Study (NCCYS)." *Health and Place* 17(3): 822–29. http://dx.doi.org/10.1016/j.healthplace.2011.03.005.

———. 2014. "Predictors of Immigrant Children's Mental Health in Canada: Selection, Settlement Contingencies, Culture, or All of the Above?" *Social Psychiatry and Psychiatric Epidemiology* 49(5): 743–56.

Beiser, Morton, and Feng Hou. 2016. "Mental Health Effects of Premigration Trauma and Postmigration Discrimination on Refugee Youth in Canada." *Journal of Nervous and Mental Disease* 204(6): 464–70.

Beiser, Morton, Feng Hou, Ilene Hyman, and Michel Tousignant. 2002. "Poverty, Family Process, and the Mental Health of Immigrant Children in Canada." *American Journal of Public Health* 92(2): 220–27.

de Bekker-Grob, Esther W. et al. 2019. "Are Healthcare Choices Predictable? The Impact of Discrete Choice Experiment Designs and Models." *Value in Health* 22(9).

de Bekker-Grob, Esther W., Bas Donkers, Marcel F. Jonker, and Elly A. Stolk. 2015. "Sample Size Requirements for Discrete-Choice Experiments in Healthcare: A Practical Guide." *Patient* 8(5): 373–84.

Belhadj Kouider, Esmahan, Ute Koglin, and Franz Petermann. 2015. "Emotional and Behavioral Problems in Migrant Children and Adolescents in American Countries: A Systematic Review." *Journal of Immigrant and Minority Health* 17(4): 1240–58. http://dx.doi.org/10.1007/s10903-014-0039-2.

Blakely, Tony et al. 2021. "Disease-Related Income and Economic Productivity Loss in New Zealand: A Longitudinal Analysis of Linked Individual-Level Data." *PLoS Medicine* 18(11): 1–19. http://dx.doi.org/10.1371/journal.pmed.1003848.

Bonsang, Eric. 2009. "Does Informal Care from Children to Their Elderly Parents Substitute for Formal Care in Europe?" *Journal of Health Economics* 28(1): 143–54.

Botly, Leigh C.P. et al. 2020. "Recent Trends in Hospitalizations for Cardiovascular Disease, Stroke, and Vascular Cognitive Impairment in Canada." *Canadian Journal of Cardiology* 36(7): 1081–90. https://doi.org/10.1016/j.cjca.2020.03.007.

Boulanger, J. M. et al. 2018. "Canadian Stroke Best Practice Recommendations for Acute Stroke Management: Prehospital, Emergency Department, and Acute Inpatient Stroke Care, 6th Edition, Update 2018." *International Journal of Stroke* 13(9): 949–84.

Boyer, Martin et al. 2017. *Long-Term Care Insurance: Knowledge Barriers, Risk Perception and Adverse Selection*. Montreal.

Boyle, Michael H., Katholiki Georgiades, Laura Duncan, Li Wang, et al. 2019. "Poverty, Neighbourhood Antisocial Behaviour, and Children's Mental Health Problems: Findings from the 2014 Ontario Child Health Study." *Canadian Journal of Psychiatry* 64(4): 285–93.

Boyle, Michael H., Katholiki Georgiades, Laura Duncan, Jinette Comeau, et al. 2019. "The 2014 Ontario Child Health Study—Methodology." *Canadian Journal of Psychiatry* 64(4): 237–45.

Boyle, Michael H., Laura Duncan, et al. 2019. "The 2014 Ontario Child Health Study Emotional Behavioural Scales (OCHS-EBS) Part II: Psychometric Adequacy for Categorical Measurement of Selected DSM-5 Disorders." *Canadian Journal of Psychiatry* 64(6): 434–42.

Bradley, Cathy J., David Neumark, and Scott Barkowski. 2013. "Does Employer-Provided Health Insurance Constrain Labor Supply Adjustments to Health Shocks? New Evidence on Women Diagnosed with Breast Cancer." *Journal of Health Economics* 32(5): 833–49. http://dx.doi.org/10.1016/j.jhealeco.2013.06.008.

Bradley, Cathy J., David Neumark, Heather L. Bednarek, and Maryjean Schenk. 2005. "Short-Term Effects of Breast Cancer on Labor Market Attachment: Results from a Longitudinal Study." *Journal of Health Economics* 24(1): 137–60.

Bradley, Elizabeth H. et al. 2004. "Intended Use of Informal Long-Term Care: The Role of Race

and Ethnicity." *Ethnicity and Health* 9(1): 37–54.
Brau, R, and LR Bruni. 2008. "Eliciting the Demand for Long-Term Care Coverage: A Discrete Choice Modelling Analysis." *Health Economics* 1131(2007): 1127–31.
Bridges, John F.P. et al. 2011. "Conjoint Analysis Applications in Health - A Checklist: A Report of the ISPOR Good Research Practices for Conjoint Analysis Task Force." *Value in Health* 14(4): 403–13. http://dx.doi.org/10.1016/j.jval.2010.11.013.
Brown, Kevin A. et al. 2021. "Association between Nursing Home Crowding and COVID-19 Infection and Mortality in Ontario, Canada." *JAMA Internal Medicine* 181(2): 229–36.
Brynaert Brennan et Associé.e.s. 2014. *Report on Service and Housing Needs of Francophone Seniors*. Erie St. Clair/South West.
Bueckert, Kate. 2021. "More Beds Coming as System Tackles 5-Year Wait Lists for Long-Term Care."
Campaign Research. 2020. *Home Care Ontario Study*.
Canada, Public Health Agency of. 2022. "COVID-19 Epidemiology Update."
Canada, Statistics. 2021. "Census Profile, 2021 Census of Population Profile Table." https://www12.statcan.gc.ca/census-recensement/2021/dp-pd/prof/details/page.cfm?Lang=E&SearchText=Ontario&DGUIDlist=2021A000235&GENDERlist=1,2,3&STATISTIClist=1&HEADERlist=0 (August 12, 2022).
Canadian Institute for Health Information. 2021. *The Impact of COVID-19 on Long-Term Care in Canada: Focus on the First 6 Months*. http://www.scie-socialcareonline.org.uk/the-impact-of-covid-19-on-long-term-care-in-canada-focus-on-the-first-6-months/r/a116f00000UuXxWAAV.
Capatina, Elena, Michael P. Keane, and Shiko Maruyama. 2018. "Health Shocks and the Evolution of Consumption and Income over the Life-Cycle." *SSRN Electronic Journal*.
Casey, Liam. 2021. "Ontario Home Care Sector Reports Mass Exodus of Healthcare Workers Moving to Hospitals, Long-Term Care Homes." *The Canadian Press*.
———. "'A Crisis for Home Care': Droves of Workers Leave for Hospitals, Nursing Homes." https://www.cbc.ca/news/canada/toronto/ont-home-care-1.6232042 (August 12, 2022).
Castañeda, Heide et al. 2015. "Immigration as a Social Determinant of Health." *Annual Review of Public Health* 36: 375–92.
Cervantes, Richard C., Karina A. Gattamorta, and Jodi Berger-Cardoso. 2019. "Examining Difference in Immigration Stress, Acculturation Stress and Mental Health Outcomes in Six Hispanic/Latino Nativity and Regional Groups." *Journal of Immigrant and Minority Health* 21(1): 14–20. http://dx.doi.org/10.1007/s10903-018-0714-9.
Chadwick, Kathryn A., and Patricia A. Collins. 2015. "Examining the Relationship between Social Support Availability, Urban Center Size, and Self-Perceived Mental Health of Recent Immigrants to Canada: A Mixed-Methods Analysis." *Social Science and Medicine* 128: 220–30. http://dx.doi.org/10.1016/j.socscimed.2015.01.036.
Chang, Cindy D. 2019. "Social Determinants of Health and Health Disparities Among Immigrants and Their Children." *Current Problems in Pediatric and Adolescent Health Care* 49(1): 23–30. https://doi.org/10.1016/j.cppeds.2018.11.009.
Charles, Kerwin Kofi. 1999. "Sickness in the Family: Health Shocks and Spousal Labor Supply."
Chen, Alice W., Arminée Kazanjian, and Hubert Wong. 2009. "Why Do Chinese Canadians Not Consult Mental Health Services: HealtH Status, Language or Culture?" *Transcultural Psychiatry* 46(4): 623–41.

Chester, Helen et al. 2018. "People with Dementia and Carer Preferences for Home Support Services in Early-Stage Dementia." *Aging and Mental Health* 22(2): 270–79. https://doi.org/10.1080/13607863.2016.1247424.

Chiswick, Barry R., Yew Liang Lee, and Paul W. Miller. 2008. "Immigrant Selection Systems and Immigrant Health." *Contemporary Economic Policy* 26(4): 555–78.

Chiu, Maria, Abigail Amartey, Xuesong Wang, and Paul Kurdyak. 2018. "Ethnic Differences in Mental Health Status and Service Utilization: A Population-Based Study in Ontario, Canada." *Canadian Journal of Psychiatry* 63(7): 481–91.

Choi, Sung. 2017. "Hospital Capital Investment during the Great Recession." *Inquiry (United States)* 54.

Choi, Sung W., Christal Ramos, Kyungha Kim, and Shahinshah Faisal Azim. 2019. "The Association of Racial and Ethnic Social Networks with Mental Health Service Utilization Across Minority Groups in the USA." *Journal of Racial and Ethnic Health Disparities* 6(4): 836–50.

Chow, Julian Chun Chung, Kim Jaffee, and Lonnie Snowden. 2003. "Racial/Ethnic Disparities in the Use of Mental Health Services in Poverty Areas." *American Journal of Public Health* 93(5): 792–97.

Chu, Leung Wing et al. 2014. "Community End-of-Life Care among Chinese Older Adults Living in Nursing Homes." *Geriatrics and Gerontology International* 14(2): 273–84.

Closing the Gap Healthcare Group Inc. 2020. "Home Care Costs in Ontario—A Complete Breakdown." https://www.closingthegap.ca/home-care-costs-in-ontario-a-complete-breakdown/.

Cloutier, Denise S. et al. 2019. "Long-Term Care Service Trajectories and Their Predictors for Persons Living With Dementia: Results From a Canadian Study." *Journal of Aging and Health* 31(1): 139–64.

Cohen, Sheldon, and Thomas Ashby Wills. 1985. "Stress, Social Support, and the Buffering Hypothesis." *Psychological Bulletin* 98(2): 310–57.

Colizzi, Marco, Antonio Lasalvia, and Mirella Ruggeri. 2020. "Prevention and Early Intervention in Youth Mental Health: Is It Time for a Multidisciplinary and Trans-Diagnostic Model for Care?" *International Journal of Mental Health Systems* 14(1): 1–14. https://doi.org/10.1186/s13033-020-00356-9.

Constant, Amelie F., Teresa García-Muñoz, Shoshana Neuman, and Tzahi Neuman. 2018. "A 'Healthy Immigrant Effect' or a 'Sick Immigrant Effect'? Selection and Policies Matter." *European Journal of Health Economics* 19(1): 103–21.

Copeland, William E., Lilly Shanahan, E. Jane Costello, and Adrian Angold. 2009. "Childhood and Adolescent Psychiatric Disorders as Predictors of Young Adult Disorders." *Archives of General Psychiatry* 66(7): 764–72.

Cost, Katherine Tombeau et al. 2022. "Mostly Worse, Occasionally Better: Impact of COVID-19 Pandemic on the Mental Health of Canadian Children and Adolescents." *European Child and Adolescent Psychiatry* 31(4): 671–84. https://doi.org/10.1007/s00787-021-01744-3.

Crossman, Eden, Feng Hou, and Garnett Picot. 2021. "Are the Gaps in Labour Market Outcomes between Immigrants and Their Canadian-Born Counterparts Starting to Close ?" *Statistics Canada* (36).

Currie, J, and BC Madrian. 1999. "Health, Health Insurance and the Labor Market." In *Handbook of Labor Economics*, eds. O Ashenfelter and D Card. Amsterdam, 3309–3407.

Cutrona, Carolyn E., Gail Wallace, and Kristin A. Wesner. 2006. "Neighborhood Characteristics

and Depression an Examination of Stress Processes." *Current Directions in Psychological Science* 15(4): 188–92.

Dano, Anne Moller. 2005. "Road Injuries and Long-Run Effects on Income and Employment." *Health Economics* 14(9): 955–70.

Danso, Kofi. 2016. "Nativity and Health Disparities: Predictors of Immigrant Health." *Social Work in Public Health* 31(3): 175–87.

Das-Munshi, Jayati et al. 2019. "Ethnic Density and Other Neighbourhood Associations for Mortality in Severe Mental Illness: A Retrospective Cohort Study with Multi-Level Analysis from an Urbanised and Ethnically Diverse Location in the UK." *The Lancet Psychiatry* 6(6): 506–17.

David Naylor, C., Andrew Boozary, and Owen Adams. 2020. "Canadian Federal-Provincial/Territorial Funding of Universal Health Care: Fraught History, Uncertain Future." *Cmaj* 192(45): E1408–12.

Delavande, Adeline, and Charles F Manski. 2015. "Using Elicited Choice Probabilities in Hypothetical Elections to Study Decisions to Vote." *Elect Stud*: 28–37.

Derose, Kathryn Pitkin, José J. Escarce, and Nicole Lurie. 2007. "Immigrants and Health Care: Sources of Vulnerability." *Health Affairs* 26(5): 1258–68.

Derr, Amelia S. 2009. "Mental Health Service Use Among Immigrants in the United States: A Systematic Review Dr." 6(2): 356–72.

Dhanaraj, Sowmya. 2016. "Economic Vulnerability to Health Shocks and Coping Strategies: Evidence from Andhra Pradesh, India." *Health Policy and Planning* 31(6): 749–58.

Disney, Lindsey. 2021. "The Impact of Employment on Immigrant Mental Health: Results from a National Survey." *Social work* 66(2): 93–100.

Dixon, Simon et al. 2015. "Assessing Patient Preferences for the Delivery of Different Community-Based Models of Care Using a Discrete Choice Experiment." *Health Expectations*.

Duncan, Laura et al. 2019. "The 2014 Ontario Child Health Study Emotional Behavioural Scales (OCHS-EBS) Part I: A Checklist for Dimensional Measurement of Selected DSM-5 Disorders." *Canadian Journal of Psychiatry* 64(6): 423–33.

Durbin, Anna et al. 2015a. "Examining the Relationship between Neighbourhood Deprivation and Mental Health Service Use of Immigrants in Ontario, Canada: A Cross-Sectional Study." *BMJ Open* 5(3).

———. 2015b. "Mental Health Service Use by Recent Immigrants from Different World Regions and by Non-Immigrants in Ontario, Canada: A Cross-Sectional Study." *BMC Health Services Research* 15(1). http://dx.doi.org/10.1186/s12913-015-0995-9.

Eccles, Jacquelynne S et al. 1993. "Development during Adolescence: The Impact of Stage-Environment Fit on Young Adolescents' Experiences in Schools and in Families." *American Psychologist* 48(2): 90–101.

Edwards, Ryan D., and Jennifer Roff. 2010. "Negative Effects of Paternal Age on Children's Neurocognitive Outcomes Can Be Explained by Maternal Education and Number of Siblings." *PLoS ONE* 5(9): 1–9.

Emerson, Scott D. et al. 2022. "Neighbourhood Context and Diagnosed Mental Health Conditions among Immigrant and Non-Immigrant Youth: A Population-Based Cohort Study in British Columbia, Canada." *Social Psychiatry and Psychiatric Epidemiology* (0123456789). https://doi.org/10.1007/s00127-022-02301-2.

Essue, BM et al. 2017. "Economic Burden of Chronic Ill Health and Injuries for Households in

Low- and Middle-Income Countries." In *Disease Control Priorities: Improving Health and Reducing Poverty,* eds. DT Jamison et al. Washington.

Fadlon, Itzik, and Torben Heien Nielsen. 2021. "Family Labor Supply Responses to Severe Health Shocks: Evidence from Danish Administrative Records†." *American Economic Journal: Applied Economics* 13(3): 1–30.

Fan, Jonathan K. et al. 2018. "Labor Market and Health Trajectories during Periods of Economic Recession and Expansion in the United States, 1988–2011." *Scandinavian Journal of Work, Environment and Health* 44(6): 639–46.

Filion, Nicole, Andrew Fenelon, and Michel Boudreaux. 2018. "Immigration, Citizenship, and the Mental Health of Adolescents." *PLoS ONE* 13(5): 1–12.

Finkelstein, Eric A., Marcel Bilger, Terry N. Flynn, and Chetna Malhotra. 2015. "Preferences for End-of-Life Care among Community-Dwelling Older Adults and Patients with Advanced Cancer: A Discrete Choice Experiment." *Health Policy* 119(11): 1482–89. http://dx.doi.org/10.1016/j.healthpol.2015.09.001.

Fisher, Michael P., and Mika K. Hamer. 2020. "Qualitative Methods in Health Policy and Systems Research: A Framework for Study Planning." *Qualitative Health Research* 30(12): 1899–1912.

Fletcher, Jason, and Katie M Jajtner. 2021. "Intergenerational Health Mobility: Magnitudes and Importance of Schools and Place." *Health Economics* 30(7): 1648–67.

Forder, Julien, Katerina Gousia, and Eirini Christina Saloniki. 2019. "The Impact of Long-Term Care on Primary Care Doctor Consultations for People over 75 Years." *European Journal of Health Economics* 20(3): 375–87. http://dx.doi.org/10.1007/s10198-018-0999-6.

Franco, Yujin, and Eun Young Choi. 2020. "The Relationship Between Immigrant Status and Undiagnosed Dementia: The Role of Limited English Proficiency." *Journal of Immigrant and Minority Health* 22(5): 914–22. https://doi.org/10.1007/s10903-019-00963-w.

Frounfelker, Rochelle L et al. 2019. "Mental Health of Refugee Children and Youth: Epidemiology, Interventions, and Future Directions." : 1–18.

Fu, Rong et al. 2019. "How Do Cardiovascular Diseases Harm Labor Force Participation? Evidence of Nationally Representative Survey Data from Japan, a Super-Aged Society." *PLoS ONE* 14(7): 1–16.

Gagnon, Monica, Nisha Kansal, Ritika Goel, and Denise Gastaldo. 2021. "Immigration Status as the Foundational Determinant of Health for People Without Status in Canada: A Scoping Review." *Journal of Immigrant and Minority Health* (0123456789). https://doi.org/10.1007/s10903-021-01273-w.

Gandhi, Sima et al. 2016a. "Mental Health Service Use among Children and Youth in Ontario: Population-Based Trends over Time." *Canadian Journal of Psychiatry* 61(2): 119–24.

———. 2016b. "Mental Health Service Use among Children and Youth in Ontario: Population-Based Trends over Time." *Canadian Journal of Psychiatry* 61(2): 119–24.

Garasia, Sophiya et al. "Health Outcomes, Health Services Utilization, and Costs Consequences of Medicare Uninsurance among Migrants in Canada: A Systematic Review." *Submitted to Health Services Research*.

García-Gómez, Pilar. 2011. "Institutions, Health Shocks and Labour Market Outcomes across Europe." *Journal of Health Economics* 30(1): 200–213.

García-Gómez, Pilar, Hans van Kippersluis, Owen O'Donnell, and Eddy van Doorslaer. 2013. "Long-Term and Spillover Effects of Health Shocks on Employment and Income." *Journal of Human Resources* 48(4): 873–909.

Garland, Allan et al. 2019a. "Effects of Cardiovascular and Cerebrovascular Health Events on Work and Earnings: A Population-Based Retrospective Cohort Study." *Annals of Internal Medicine* 191(1): E3–10.

———. 2019b. "Effects of Cardiovascular and Cerebrovascular Health Events on Work and Earnings: A Population-Based Retrospective Cohort Study." *Annals of Internal Medicine* 191(1): E3–10.

Gatt, Justine M. et al. 2020. "Trauma, Resilience, and Mental Health in Migrant and Non-Migrant Youth: An International Cross-Sectional Study Across Six Countries." *Frontiers in Psychiatry* 10(March): 1–15.

Gentili, Elena, Giuliano Masiero, and Fabrizio Mazzonna. 2017. "The Role of Culture in Long-Term Care Arrangement Decisions." *Journal of Economic Behavior and Organization* 143: 186–200. https://doi.org/10.1016/j.jebo.2017.09.007.

George, M. A., and C. Bassani. 2016a. "The Health of Immigrant Children Who Live in Areas with High Immigrant Concentration." *Ethnicity and Health* 21(5): 426–38. http://dx.doi.org/10.1080/13557858.2015.1066762.

———. 2016b. "The Health of Immigrant Children Who Live in Areas with High Immigrant Concentration." *Ethnicity and Health* 21(5): 426–38. http://dx.doi.org/10.1080/13557858.2015.1066762.

George, Usha, Mary S. Thomson, Ferzana Chaze, and Sepali Guruge. 2015. "Immigrant Mental Health, a Public Health Issue: Looking Back and Moving Forward." *International Journal of Environmental Research and Public Health* 12(10): 13624–48.

Georgiades, Katholiki et al. 2019. "Six-Month Prevalence of Mental Disorders and Service Contacts among Children and Youth in Ontario: Evidence from the 2014 Ontario Child Health Study." *Canadian Journal of Psychiatry* 64(4): 246–55.

Georgiades, Katholiki, Michael H. Boyle, and Eric Duku. 2007. "Contextual Influences on Children's Mental Health and School Performance: The Moderating Effects of Family Immigrant Status." *Child Development* 78(5): 1572–91.

Georgiades, Katholiki, Michael H. Boyle, and Kelly A. Fife. 2013. "Emotional and Behavioral Problems Among Adolescent Students: The Role of Immigrant, Racial/Ethnic Congruence and Belongingness in Schools." *Journal of Youth and Adolescence* 42(9): 1473–92.

Gibbard, Robyn. 2017. "Sizing up the Challenge: Meeting the Demand for Long-Term Care in Canada." *The Conference Board of Canada* (November): 1–48. https://www.cma.ca/sites/default/files/2018-11/9228_Meeting the Demand for Long-Term Care Beds_RPT.pdf.

Government of Canada. 2014. "Government of Canada — Action for Seniors Report." https://www.canada.ca/en/employment-social-development/programs/seniors-action-report.html (August 12, 2022).

———. 2019. "Rural and Northern Immigration Pilot: About the Pilot - Canada.Ca." https://www.canada.ca/en/immigration-refugees-citizenship/services/immigrate-canada/rural-northern-immigration-pilot.html (January 15, 2020).

———. 2022a. "Atlantic Immigration Program." https://www.canada.ca/en/immigration-refugees-citizenship/services/immigrate-canada/atlantic-immigration.html (August 27, 2022).

———. 2022b. "Interim Federal Health Program: What Is Covered." https://www.canada.ca/en/immigration-refugees-citizenship/services/refugees/help-within-canada/health-care/interim-federal-health-program/coverage-summary.html (September 28,

2022).
Government of Ontario. 2022. “Protecting People’s Health.” https://budget.ontario.ca/2021/health.html (August 12, 2022).
Grignon, Michel, and Byron G. Spencer. 2018. “The Funding of Long-Term Care in Canada: What Do We Know, What Should We Know.” *Canadian Journal on Aging* 37(2): 110–20.
Guan, Alice et al. 2020. “Neighborhood Ethnic Composition and Self-Rated Health Among Chinese and Vietnamese American Immigrants.” *Journal of Immigrant and Minority Health* (0123456789). https://doi.org/10.1007/s10903-020-01041-2.
Gupta, R, and K Vijayan. 2020. “Analysis of Caregiver Burden in South Asian Families in the Dallas-Fort Worth Metropolitan Area : Insights for Social Practice Author (s): Rashmi Gupta and Vijayan K . Pillai Source : Journal of Applied Sociology , Vol . 22 , No . 2 , Special Joint Issu.” 22(2): 35–54.
Gustafsson-Wright, Emily, Wendy Janssens, and Jacques Van Der Gaag. 2011. “The Inequitable Impact of Health Shocks on the Uninsured in Namibia.” *Health Policy and Planning* 26(2): 142–56.
H. Krueger & Associates Inc. 2015. *Estimated Prevalence of Stroke Survivors with Disability in Canada*. https://www.canadianstroke.ca/sites/default/files/resources/Stroke-Prevalence-Report-2015-02-25.pdf.
Haan, Peter, and Michal Myck. 2009. “Dynamics of Health and Labor Market Risks.” *Journal of Health Economics* 28(6): 1116–25.
Halla, Martin, and Martina Zweimüller. 2013. “The Effect of Health on Earnings: Quasi-Experimental Evidence from Commuting Accidents.” *Labour Economics* 24: 23–38.
Halsall, Tanya et al. 2019. “Trends in Mental Health System Transformation: Integrating Youth Services within the Canadian Context.” *Healthcare Management Forum* 32(2): 51–55.
Hansen, Marissa C., Dahlia Fuentes, and Maria P. Aranda. 2018. “Re-Engagement into Care: The Role of Social Support on Service Use for Recurrent Episodes of Mental Health Distress Among Primary Care Patients.” *Journal of Behavioral Health Services and Research* 45(1): 90–104.
Hansson, Emily K., Andrew Tuck, Steve Lurie, and Kwame McKenzie. 2012. “Rates of Mental Illness and Suicidality in Immigrant, Refugee, Ethnocultural, and Racialized Groups in Canada: A Review of the Literature.” *Canadian Journal of Psychiatry* 57(2): 111–21.
Health Quality Ontario. 2012. *Quality Improvement Plans in Long-Term Care: Lessons Learned*.
Heart and Stroke Foundation. “Saving Lives | Heart and Stroke Foundation.” https://www.heartandstroke.ca/what-we-do/our-impact/saving-lives (June 7, 2022).
Heinesen, Eskil, Susumu Imai, and Shiko Maruyama. 2018. “Employment, Job Skills and Occupational Mobility of Cancer Survivors.” *Journal of Health Economics* 58: 151–75. https://doi.org/10.1016/j.jhealeco.2018.01.006.
Henry, Hani M. et al. 2009. “Immigrants’ Continuing Bonds with Their Native Culture: AssimilatioN Analysis of Three Interviews.” *Transcultural Psychiatry* 46(2): 257–84.
Hensher, David A, John M. Rose, and William H. Greene. 2005. *Applied Choice Analysis A Primer*. Cambridge: Cambridge University Press.
Home Care Ontario. “Home Care & Me | Home Care Ontario.” https://www.homecareontario.ca/home-care-services/overview (February 1, 2020).
Houle, René, and Hélène Maheux. 2016. “150 Years of Immigration in Canada.” *Statistics Canada*. https://www150.statcan.gc.ca/n1/pub/11-630-x/11-630-x2016006-eng.htm.
Howard, George et al. 1985. “Factors Influencing Return to Work Following Cerebral

Infarction." *JAMA: The Journal of the American Medical Association* 253(2): 226–32.
Hurlburt, Michael S. et al. 2004. "Contextual Predictors of Mental Health Service Use among Children Open to Child Welfare." *Archives of General Psychiatry* 61(12): 1217–24.
Hutchison, Brian, Jean-frédéric Levesque, Erin Strumpf, and Natalie Coyle. 2015. "Primary Health Care in Canada : Systems in Motion Source : The Milbank Quarterly , Vol . 89 , No . 2 (June 2011), Pp . 256-288 Published by : Wiley on Behalf of Milbank Memorial Fund Stable URL : Http://Www.Jstor.Org/Stable/23036216 Your Use of the JSTO." 89(2): 256–88.
Imbens, Guido W. 2015. "Matching Methods in Practice: Three Examples." *Journal of Human Resources* 50(2): 373–419.
IOM UN Migration. 2020. *World Migration Report 2020*. Geneva.
Islam, A, and J Parasnis. 2017. "Heterogeneous Effects of Health Shocks in Developed Countries: Evidence from Australia." *Monash University Department of Economics*.
Islam, Farah. 2015. "Immigrating to Canada during Early Childhood Associated with Increased Risk for Mood Disorders." *Community Mental Health Journal* 51(6): 723–32. http://dx.doi.org/10.1007/s10597-015-9851-y.
Janssen, Ellen M., Deborah A. Marshall, A. Brett Hauber, and John F.P. Bridges. 2017. "Improving the Quality of Discrete-Choice Experiments in Health: How Can We Assess Validity and Reliability?" *Expert Review of Pharmacoeconomics and Outcomes Research*.
Jeon, Sung Hee et al. 2020. "Effects of Cardiovascular Health Shocks on Spouses' Work and Earnings: A National Study." *Medical Care* 58(2): 128–36.
Jeong, Ahwon et al. 2020. "Health Outcomes of Immigrants in Nursing Homes: A Population-Based Retrospective Cohort Study in Ontario, Canada." *Journal of the American Medical Directors Association* 21(6): 740-746.e5. https://doi.org/10.1016/j.jamda.2020.03.001.
Johnson, F. Reed et al. 2013. "Constructing Experimental Designs for Discrete-Choice Experiments: Report of the ISPOR Conjoint Analysis Experimental Design Good Research Practices Task Force." *Value in Health* 16(1): 3–13.
Johnson, R, and B Orme. 2003. "Getting the Most from CBC." *Sequim: Sawtooth Software Research Paper Series*.
Johnson, Reed et al. 2013. "Constructing Experimental Designs for Discrete-Choice Experiments: Report of the ISPOR Conjoint Analysis Experimental Design Good Research Practices Task Force." *Value in Health*.
Johnson, Shanthi et al. 2018. "No Place Like Home: A Systematic Review of Home Care for Older Adults in Canada." *Canadian Journal on Aging* 37(4): 400–419.
Jones, Aaron et al. 2021. "Impact of the COVID-19 Pandemic on Home Care Services Among Community-Dwelling Adults With Dementia." *Journal of the American Medical Directors Association* 22(11): 2258-2262.e1. https://doi.org/10.1016/j.jamda.2021.08.031.
Jones, Andrew M., Nigel Rice, and Francesca Zantomio. 2020. "Acute Health Shocks and Labour Market Outcomes: Evidence from the Post Crash Era." *Economics and Human Biology* 36(2020): 100811. https://doi.org/10.1016/j.ehb.2019.100811.
Kaambwa, Billingsley et al. 2015. "Investigating Consumers' and Informal Carers' Views and Preferences for Consumer Directed Care: A Discrete Choice Experiment." *Social Science and Medicine* 140: 81–94. http://dx.doi.org/10.1016/j.socscimed.2015.06.034.
Kaida, Lisa, and Monica Boyd. 2011. "Poverty Variations among the Elderly: The Roles of Income Security Policies and Family Co-Residence." *Canadian Journal on Aging* 30(1): 83–100.

Kampanellou, Eleni, Helen Chester, Linda Davies, Sue Davies, Clarissa Giebel, Jane Hughes, David Challis, Paul Clarkson, et al. 2019. "Carer Preferences for Home Support Services in Later Stage Dementia." *Aging & mental health* 23(1): 60–68. http://ovidsp.ovid.com/ovidweb.cgi?T=JS&PAGE=reference&D=prem&NEWS=N&AN=29090948.

———. 2019. "Carer Preferences for Home Support Services in Later Stage Dementia." *Aging and Mental Health* 23(1): 60–68. https://doi.org/10.1080/13607863.2017.1394441.

Ketchen, Sandra. 2021. "Ontario Seniors and Patients Will Pay the Price of the Developing Home-Care Crisis." *Toronto News*.

Kim, Daniel. 2008. "Blues from the Neighborhood? Neighborhood Characteristics and Depression." *Epidemiologic Reviews* 30(1): 101–17.

Kim, Sophia Bohun, and Yeonjung Jane Lee. 2021. "Factors Associated with Mental Health Help-Seeking Among Asian Americans: A Systematic Review." *Journal of Racial and Ethnic Health Disparities*.

Kimber, Melissa et al. 2015. "Adolescent Body Image Distortion: A Consideration of Immigrant Generational Status, Immigrant Concentration, Sex and Body Dissatisfaction." *Journal of Youth and Adolescence* 44(11): 2154–71.

Koehn, Sharon. 2009. "Negotiating Candidacy: Ethnic Minority Seniors' Access to Care." *Ageing and Society* 29(4): 585–608.

Kovaleva, Mariya, Abigail Jones, Cathy A. Maxwell, and Elizabeth M. Long. 2021. "Immigrants and Dementia: Literature Update." *Geriatric Nursing* 42(5): 1218–21. https://doi.org/10.1016/j.gerinurse.2021.04.019.

Kuluski, Kerry, A. Paul Williams, Whitney Berta, and Audrey Laporte. 2012. "Home Care or Long-Term Care? Setting the Balance of Care in Urban and Rural Northwestern Ontario, Canada." *Health and Social Care in the Community* 20(4): 438–48.

Kwak, Kyunghwa. 2016. "An Evaluation of the Healthy Immigrant Effect with Adolescents in Canada: Examinations of Gender and Length of Residence." *Social Science and Medicine* 157: 87–95. http://dx.doi.org/10.1016/j.socscimed.2016.03.017.

Lagarde, Mylene, and Duane Blaauw. 2009. "A Review of the Application and Contribution of Discrete Choice Experiments to Inform Human Resources Policy Interventions." *Human Resources for Health* 7: 1–10.

Laher, Nazeefah. 2017. "Diversity, Aging, and Intersectionality in Ontario Home Care." (May). www.wellesleyinstitute.com.

Lai, Daniel W.L., and Shireen Surood. 2010. "Types and Factor Structure of Barriers to Utilization of Health Services among Aging South Asians in Calgary, Canada." *Canadian Journal on Aging* 29(2): 249–58.

Lancaster, K. 1966. "A New Approach to Consumer Theory Author (s): Kelvin J . Lancaster Reviewed Work (s): Source : Journal of Political Economy , Vol . 74 , No . 2 (Apr ., 1966), Pp . 132-157 Published by : The University of Chicago Press Stable URL : Http://Www.Jstor." 74(2): 132–57.

Lancsar, Emily, Denzil G. Fiebig, and Arne Risa Hole. 2017. "Discrete Choice Experiments: A Guide to Model Specification, Estimation and Software." *PharmacoEconomics*.

Lanoix, Monique. 2017. "No Longer Home Alone? Home Care and the Canada Health Act." *Health Care Analysis* 25(2): 168–89.

Lapointe-Shaw, Lauren et al. 2021. "Homebound Status among Older Adult Home Care Recipients in Ontario, Canada." *Journal of the American Geriatrics Society* (March): 1–11.

Laroche, Mireille. 2000. "Health Status and Health Services Utilization of Canada's Immigrant and Non-Immigrant Populations." *Canadian Public Policy* 26(1): 51–75.
Legislative Assembly of Ontario. 2022. "Bill 7, More Beds, Better Care Act, 2022."
Lehnert, T. et al. 2018. "Preferences for Home- and Community-Based Long-Term Care Services in Germany: A Discrete Choice Experiment." *European Journal of Health Economics*.
Lehnert, T, M Heuchert, K Hussain, and HK Konig. 2018. "Stated Preferences for Long-Term Care: A Literature Review." *Ageing and Society*.
Lehnert, Thomas, Max Heuchert, Katharina Hussain, and Hans-Helmut König. 2019. "Stated Preferences for Long-Term Care: A Literature Review."
Lenhart, Otto. 2019. "The Effects of Health Shocks on Labor Market Outcomes: Evidence from UK Panel Data." *European Journal of Health Economics* 20(1): 83–98.
Lin, Elizabeth et al. 1996. "The Use of Mental Health Services in Ontario: Epidemiologic Findings." *Canadian Journal of Psychiatry* 41(9): 572–77.
Liu, Xing. 2016. *Applied Ordinal Logistic Regression Using Stata*. Thousand Oaks: Sage.
Locker, David, John Maggirias, and Carlos Quiñonez. 2011. "Income, Dental Insurance Coverage, and Financial Barriers to Dental Care among Canadian Adults." *Journal of Public Health Dentistry* 71(4): 327–34.
Louviere, Jordan J, David A Hensher, and Joffre D Swait. 2000. *Stated Choice Methods Analysis and Application*. Cambridge: University Press.
Luce, Mary F, John W Payne, and James R Bettman. 1999. "Emotional Trade-off Difficulty and Choice." *Journal of Marketing Research* 36(2): 143–59.
Ludwig, Jens, Greg Duncan, Lawrence K Atz, and Lisa Sanbonmatsu. 2014. "Moving to More Affluent Neighborhoods." : 1–4. macfound.org/HousingMatters.
Lundborg, Petter, NilssonMartin, and Johan Vikstrom. 2015. "Heterogeneity in the Impact of Health Shocks on Labour Outcomes: Evidence from Swedish Workers." *Oxford Economic Papers* 67(3): 715–39.
Ma, Xin. 2002. "The First Ten Years in Canada: A Multi-Level Assessment of Behavioural and Emotional Problems of Immigrant Children." *Canadian Public Policy* 28(3): 395–418.
Mackenzie, Kwame, Branka Agic, Andrew Tuck, and Michael Antwi. 2016. *The Case for Diversity : Building the Case to Improve Mental Health Services for Immigrant, Refugee, Ethno-Cultural and Racialized Populations : Report to the Mental Health Commission of Canada*. https://www.mentalhealthcommission.ca/sites/default/files/2016-10/case_for_diversity_oct_2016_eng.pdf.
Magnusson, D, and H Stattin. 1998. "Person-Context Interaction Theories." In *Handbook of Child Psychology: Vol. 1. Theoretical Models of Human Development*, New York: Wiley, 685–759.
De Maio, Fernando G. 2010. "Immigration as Pathogenic: A Systematic Review of the Health of Immigrants to Canada." *International Journal for Equity in Health* 9(1): 27. http://www.equityhealthj.com/content/9/1/27.
Manski, Charles F. 2010. "Measuring Expectations." *Society* 28(5): 244–57.
Marchildon, Gregory, and Livio Di Matteo. 2011. "Health Care Cost Drivers : The Facts, Spending and Workforce." *Canadian Institute for Health Information* (October 2011): 1–33.
Markides, Kyriakos S., and Sunshine Rote. 2019. "The Healthy Immigrant Effect and Aging in the United States and Other Western Countries." *Gerontologist* 59(2): 205–14.

Marmot, MG, AM Adelstein, and L Bulusu. 1984. "Lessons from the Study of Immigrant Mor-Tality." *The Lancet* 1(8392): 1455–57.

Martin, Danielle et al. 2018. "Canada's Universal Health-Care System: Achieving Its Potential." *The Lancet* 391(10131): 1718–35.

Martinez, William, and Antonio J. Polo. 2018. "Neighborhood Context, Family Cultural Values, and Latinx Youth Externalizing Problems." *Journal of Youth and Adolescence* 47(11): 2440–52. http://dx.doi.org/10.1007/s10964-018-0914-6.

Masuda, Akihiko, Page L. Anderson, and Joshua Edmonds. 2012. "Help-Seeking Attitudes, Mental Health Stigma, and Self-Concealment Among African American College Students." *Journal of Black Studies* 43(7): 773–86.

Maulik, Pallab, William Eaton, and Catherine Bradshaw. 2009. "The Role of Social Network and Support in Mental Health Service Use: Findings From the Baltimore ECA Study." *Psychiatric Services* 60(9).

McKenzie, Kwame. 2019. "Improving Mental Health Services for Immigrant, Racialized, Ethno-Cultural and Refugee Groups." *Healthcare Papers* 18(2): 4–9.

McLeod Macey, Jennifer, and Grace Tong. 2017. "Children and Youth Mental Health Survey: Getting Help in Ontario." : 1–23. https://www.ipsos.com/en-ca/news-polls/CMHO-children-and-youth-mental-health-ontario.

Mehmetoglu, Mehmet, and Tor Georg Jakobsen. 2002. "Multilevel Analysis." In *Applied Statistics Using Stata - A Guide for the Social Sciences*, London: SAGE Publications Ltd (E-mail: info@sagepub.co.uk), 195–224.

Mendicino, Marco E.L. 2020. *2020 Annual Report to Parliament on Immigration*. Ottawa, ON.

Menezes, N. M., K. Georgiades, and M. H. Boyle. 2011. "The Influence of Immigrant Status and Concentration on Psychiatric Disorder in Canada: A Multi-Level Analysis." *Psychological Medicine* 41(10): 2221–31. https://www.cambridge.org/core/product/identifier/S0033291711000213/type/journal_article (January 15, 2020).

Mensah, George A. et al. 2017. "Decline in Cardiovascular Mortality: Possible Causes and Implications." *Circulation Research* 120(2): 366–80.

Mentzakis, Emmanouil, Manuel García-Goñi, Ana Rita Sequeira, and Francesco Paolucci. 2019. "Equity and Efficiency Priorities within the Spanish Health System: A Discrete Choice Experiment Eliciting Stakeholders Preferences." *Health Policy and Technology* 8(1): 30–41. https://doi.org/10.1016/j.hlpt.2019.01.003.

Min, Jong W., and Concepcion Barrio. 2009. "Cultural Values and Caregiver Preference for Mexican-American and Non-Latino White Elders." *Journal of Cross-Cultural Gerontology* 24(3): 225–39.

Ministry of Health and Long-Term Care. 2019. "Become an Ontario Health Team - Health Care Professionals - MOHLTC." http://health.gov.on.ca/en/pro/programs/connectedcare/oht/default.aspx LB - UQzQ (December 3, 2020).

Mittmann, Nicole et al. 2012. "Impact of Disability Status on Ischemic Stroke Costs in Canada in the First Year." *Can J Neurol Sci* 39(6): 793–800.

Morassaei, Sara et al. 2022. "The Role of Immigrant Admission Classes on the Health and Well-Being of Immigrants and Refugees in Canada: A Scoping Review." *Journal of Immigrant and Minority Health* (0123456789). https://doi.org/10.1007/s10903-022-01352-6.

Morgan M. Rogers-Carter1 2, Juan A Varela1 2 Katherine B Gribbons1 Anne F Pierce1 Morgan

T McGoey1 Maureen Ritchey1, and John P Christianson1. 2017. "Health Impacts of the Great Recession: A Critical Review." *Physiology & behavior* 176(12): 139–48.

Moullan, Yasser, and Florence Jusot. 2014. "Why Is the 'healthy Immigrant Effect' Different between European Countries?" *European Journal of Public Health* 24(SUPPL.1): 80–86.

Mueller, Richard E, and N T Khuong Truong. 2022. "Wage and Basic Skills Inequality between Immigrants by Immigration Admission Categories and Canadian Non-Immigrants." *Empirical Economics* 62(4): 1833–84. http://libaccess.mcmaster.ca/login?url=https://search.ebscohost.com/login.aspx?direct=true&db=eoh&AN=1956049&site=ehost-live&scope=site.

Munroe-Blum, Heather, Michael H. Boyle, David R. Offord, and Nicholas Kates. 1989. "IMMIGRANT CHILDREN: Psychiatric Disorder, School Performance, and Service Utilization." *American Journal of Orthopsychiatry* 59(4): 510–19.

Nascimento, Lucas R. et al. 2021. "Predictors of Return to Work after Stroke: A Prospective, Observational Cohort Study with 6 Months Follow-Up." *Disability and Rehabilitation* 43(4): 525–29.

Netten, A. et al. 2012. "Outcomes of Social Care for Adults: Developing a Preference-Weighted Measure." *Health Technology Assessment* 16(16): 1–165.

Ng, Edward. 2020. "COVID-19 Deaths among Immigrants: Evidence from the Early Months of the Pandemic." *Statistics Canada* (45280001): 1–9.

Ng, Edward, Kevin Pottie, and Denise Spitzer. 2011. "Official Language Proficiency and Selfreported Health among Immigrants to Canada." *Health Reports* 22(4).

Nieboer, Anna P., Xander Koolman, and Elly A. Stolk. 2010. "Preferences for Long-Term Care Services: Willingness to Pay Estimates Derived from a Discrete Choice Experiment." *Social Science and Medicine*.

O'Neill, Braden et al. 2022. "Socioeconomic and Immigration Status and COVID-19 Testing in Toronto, Ontario: Retrospective Cross-Sectional Study." *BMC Public Health* 22(1): 1–9. https://doi.org/10.1186/s12889-022-13388-2.

Ohle, Robert, Helena Bleeker, Krishan Yadav, and Jeffrey J. Perry. 2018. "The Immigrant Effect: Factors Impacting Use of Primary and Emergency Department Care - A Canadian Population Cross-Sectional Study." *Canadian Journal of Emergency Medicine* 20(2): 260–65.

Ojeda, Victoria D, Richard G Frank, Thomas G McGuire, and Todd P Gilmer. 2010. "Mental Illness, Nativity, Gender, and Labor Supply." 19: 396–421.

Okrainec, Karen, Chaim M. Bell, Simon Hollands, and Gillian L. Booth. 2015. "Risk of Cardiovascular Events and Mortality among a Population-Based Cohort of Immigrants and Long-Term Residents with Diabetes: Are All Immigrants Healthier and If so, for How Long?" *American Heart Journal* 170(1): 123–32. http://dx.doi.org/10.1016/j.ahj.2015.04.009.

Oldenburger, David et al. 2022. "COVID - 19 Issues in Long-Term Care in Ontario : A Document Analysis Enjeux Liés à La COVID-19 Dans Les Soins de Longue Durée En Ontario : Une Analyse de Documents." 17: 53–65.

Ontario's Regulatory Registry. 2022. *Fixing Long-Term Care Act, 2021*. Toronto, Canada. https://www.ontario.ca/laws/statute/21f39.

Ontario, Home Care. 2020. "New Poll Shows Over 90% of Ontario Seniors Want to Live at Home as They Age, and Want Government to Invest to Help Them Do It." https://www.newswire.ca/news-releases/new-poll-shows-over-90-of-ontario-seniors-want-

to-live-at-home-as-they-age-and-want-government-to-invest-to-help-them-do-it-857341964.html.

———. 2021. "97 Per Cent of Ontario Seniors Want Increased Home Care Funding: Poll." https://www.newswire.ca/news-releases/97-per-cent-of-ontario-seniors-want-increased-home-care-funding-poll-805034645.html (March 3, 2022).

Ontario Long-term Care Association. 2021. "The Role of Long-Term Care." https://www.oltca.com/oltca/OLTCA/Public/LongTermCare/FactsFigures.aspx (August 12, 2022).

Ontario Long Term Care Association. 2019. "Facts and Figures." https://www.oltca.com/oltca/OLTCA/Public/LongTermCare/FactsFigures.aspx (December 3, 2020).

Ontario Ministry of Finance. 2019. "Ontario Population Projections, 2018-2046." : 2018–46.

Ontario Ministry of Health. 2021. "Ontario Welcomes New Long-Term Care Development Proposals." https://news.ontario.ca/en/release/1001009/ontario-welcomes-new-long-term-care-development-proposals.

———. 2022. "Long-Term Care Accommodation Costs and Subsidy."

———. *Ontario Health Teams: Guidance for Health Care Providers and Organizations*.

Osler, Merete, Solvej Mårtensson, Eva Prescott, and Kathrine Carlsen. 2014. "Impact of Gender, Co-Morbidity and Social Factors on Labour Market Affiliation after First Admission for Acute Coronary Syndrome. A Cohort Study of Danish Patients 2001-2009." *PLoS ONE* 9(1).

Patel, Asiya et al. 2019. "Double Burden of Rural Migration in Canada? Considering the Social Determinants of Health Related to Immigrant Settlement Outside the Cosmopolis." *International Journal of Environmental Research and Public Health* 16(5).

Patterson, Beth, Hmwe Hmwe Kyu, and Katholiki Georgiades. 2013. "Age at Immigration to Canada and the Occurrence of Mood, Anxiety, and Substance Use Disorders." *Canadian Journal of Psychiatry* 58(4): 210–17.

Pelley, Lauren. 2022. "Communities with Low Incomes, Immigrants, Essential Workers Hardest Hit by COVID-19: Study." *CBC News*.

Phillips, Susan P., and Janelle Yu. 2021. "Is Anxiety/Depression Increasing among 5-25 Year-Olds? A Cross-Sectional Prevalence Study in Ontario, Canada, 1997-2017." *Journal of Affective Disorders* 282(November 2020): 141–46. https://doi.org/10.1016/j.jad.2020.12.178.

Pickett, Kate E., and Richard G. Wilkinson. 2008. "People like Us: Ethnic Group Density Effects on Health." *Ethnicity and Health* 13(4): 321–34.

Pignone, Michael P. et al. 2014. "Using a Discrete Choice Experiment to Inform the Design of Programs to Promote Colon Cancer Screening for Vulnerable Populations in North Carolina." *BMC Health Services Research* 14(1): 1–9.

Pinchas-Mizrachi, Ronit, Yaakov Naparstek, Ronit Nirel, and Ehud Kukia. 2020. "The 'Sick Immigrant' and 'Healthy Immigrant' Phenomenon among Jews Migrating from the USSR to Israel." *SSM - Population Health* 12: 100694. https://doi.org/10.1016/j.ssmph.2020.100694.

Pottie, Kevin et al. 2015. "Do First Generation Immigrant Adolescents Face Higher Rates of Bullying, Violence and Suicidal Behaviours Than Do Third Generation and Native Born?" *Journal of Immigrant and Minority Health* 17(5): 1557–66. http://dx.doi.org/10.1007/s10903-014-0108-6.

Puyat, Joseph H. 2013. "Is the Influence of Social Support on Mental Health the Same for Immigrants and Non-Immigrants?" *Journal of Immigrant and Minority Health* 15(3): 598–605.

Quach, Bradley I. et al. 2021. "Comparison of End-of-Life Care between Recent Immigrants and Long-Standing Residents in Ontario, Canada." *JAMA Network Open* 4(11): 1–13.

Quaife, Matthew, Fern Terris-Prestholt, Gian Luca Di Tanna, and Peter Vickerman. 2018. "How Well Do Discrete Choice Experiments Predict Health Choices? A Systematic Review and Meta-Analysis of External Validity." *European Journal of Health Economics* 19(8): 1053–66. https://doi.org/10.1007/s10198-018-0954-6.

Qureshi, Danial et al. 2021. "Describing Differences Among Recent Immigrants and Long-Standing Residents Waiting for Long-Term Care: A Population-Based Retrospective Cohort Study." *Journal of the American Medical Directors Association* 22(3): 648–55. https://doi.org/10.1016/j.jamda.2020.07.018.

Racine, Nicole et al. 2021. "Global Prevalence of Depressive and Anxiety Symptoms in Children and Adolescents during COVID-19: A Meta-Analysis." *JAMA Pediatrics* 175(11): 1142–50.

Raudenbush, S.W., and A.S. Bryk. 2002. *Hierarchial Linear Models: Applications and Data Analysis Methods (2nd Ed.)*. Thousand Oaks: Sage.

Ridde, Valéry et al. 2020. "Unmet Healthcare Needs among Migrants without Medical Insurance in Montreal, Canada." *Global Public Health* 15(11): 1603–16.

Roberts, Tessa et al. 2018. "Factors Associated with Health Service Utilisation for Common Mental Disorders: A Systematic Review." *BMC Psychiatry* 18(1): 1–19.

Robinson, Stephanie M. et al. 2015. "Home, Please: A Conjoint Analysis of Patient Preferences after a Bad Hip Fracture." *Geriatrics and Gerontology International* 15(10): 1165–70.

Rogers, Wendy A., Widya A. Ramadhani, and Maurita T. Harris. 2020. "Defining Aging in Place: The Intersectionality of Space, Person, and Time." *Innovation in Aging* 4(4): 1–11.

Rosenberg, Julia et al. 2020. "Disparities in Mental and Behavioral Health Treatment for Children and Youth in Immigrant Families." *Academic Pediatrics* 20(8): 1148–56. https://doi.org/10.1016/j.acap.2020.06.013.

Ross, F, RE Mueller, and Arthur Sweetman. 2016. "The Cultural Determinants of Access to Post-Secondary (Higher) Education in Canada: Empirical Evidence and Policy Implications." In *Access and Expansion Post-Massification: Opportunities and Barriers to Further Growth in Higher Education Participation*, eds. BWA JongBloed and H Vossensteyn. New York: Routledge, 150–78.

Rousseau, Cécile, and Rochelle L. Frounfelker. 2019. "Mental Health Needs and Services for Migrants: An Overview for Primary Care Providers." *Journal of Travel Medicine* 26(2): 1–8.

Rousseau, Cécile, Ghayda Hassan, Toby Measham, and Myrna Lashley. 2008. "Prevalence and Correlates of Conduct Disorder and Problem Behavior in Caribbean and Filipino Immigrant Adolescents." *European Child and Adolescent Psychiatry* 17(5): 264–73.

Runnels, Vivian. 2017. *Understanding Immigrant Seniors' Needs and Priorities for Health Care*.

Salam, Zoha et al. 2022. "Systemic and Individual Factors That Shape Mental Health Service Usage Among Visible Minority Immigrants and Refugees in Canada: A Scoping Review." *Administration and Policy in Mental Health and Mental Health Services Research* (0123456789). https://doi.org/10.1007/s10488-021-01183-x.

Salloum, Ramzi G., Elizabeth A. Shenkman, Jordan J. Louviere, and David A. Chambers. 2017.

"Application of Discrete Choice Experiments to Enhance Stakeholder Engagement as a Strategy for Advancing Implementation: A Systematic Review." *Implementation Science* 12(1): 1–12.

Samuelson-Kiraly, Claire et al. 2020. "Access and Quality of Health Care in Canada: Insights from 1998 to the Present." *Healthcare Management Forum* 33(6): 253–58.

Sandelowski, M. 2000. "Focus on Research Methods: Whatever Happened to Qualitative Description?" *Research in Nursing and Health* 23(4): 334–40.

Sarría-Santamera, Antonio, Ana Isabel Hijas-Gómez, Rocío Carmona, and Luís Andrés Gimeno-Feliú. 2016. "A Systematic Review of the Use of Health Services by Immigrants and Native Populations." *Public Health Reviews* 37(1). http://dx.doi.org/10.1186/s40985-016-0042-3.

Saunders, Natasha Ruth, Michael Lebenbaum, et al. 2018. "Trends in Mental Health Service Utilisation in Immigrant Youth in Ontario, Canada, 1996-2012: A Population-Based Longitudinal Cohort Study." *BMJ open* 8(9).

Saunders, Natasha Ruth, Peter J. Gill, et al. 2018. "Use of the Emergency Department as a First Point of Contact for Mental Health Care by Immigrant Youth in Canada: A Population-Based Study." *Cmaj* 190(40): E1183–91.

Saunders, Natasha Ruth et al. 2022. "Changes in Hospital-Based Care Seeking for Acute Mental Health Concerns among Children and Adolescents during the COVID-19 Pandemic in Ontario, Canada, Through September 2021." *JAMA Network Open* 5(7): E2220553.

Savaş, Özge et al. 2021. "All Immigrants Are Not Alike : Intersectionality Matters in Views of Immigrant Groups Non-Technical Summary An Intersectional Perspective on Immigrant Groups."

Sawamura, Kanae, Hiroshi Sano, and Miharu Nakanishi. 2015. "Japanese Public Long-Term Care Insured: Preferences for Future Long-Term Care Facilities, Including Relocation, Waiting Times, and Individualized Care." *Journal of the American Medical Directors Association* 16(4): 350.e9-350.e20. http://dx.doi.org/10.1016/j.jamda.2015.01.082.

Sellström, Eva, and Sven Bremberg. 2006. "The Significance of Neighbourhood Context to Child and Adolescent Health and Well-Being: A Systematic Review of Multilevel Studies." *Scandinavian journal of public health* 34(5): 544–54. http://www.ncbi.nlm.nih.gov/pubmed/16990166 (January 14, 2020).

Sheehan, David V. et al. 2010. "Reliability and Validity of the Mini International Neuropsychiatric Interview for Children and Adolescents (MINI-KID)." *Journal of Clinical Psychiatry* 71(3): 313–26.

Shields, Margot et al. 2021. "Symptoms of Major Depressive Disorder during the Covid-19 Pandemic: Results from a Representative Sample of the Canadian Population." *Health Promotion and Chronic Disease Prevention in Canada* 41(11): 340–58.

Shim, R.S. et al. 2009. "Race-Ethnicity as a Predictor of Attitudes Toward Mental Health Treatment Seeking." *Psychiatr Serv.* 60(10): 1336–41. file:///C:/Users/Carla Carolina/Desktop/Artigos para acrescentar na qualificação/The impact of birth weight on cardiovascular disease risk in the.pdf.

Shortt, Janet. 2014. "A Historical Perspective of the Effect of the Great Recession on Hospitals." *AORN Journal* 100(2): 177–87.

Smith, James P. 1999. "Healthy Bodies and Thick Wallets: The Dual Relation between Health and Economic Status." *Journal of Economic Perspectives* 13(2): 145–66.

Sohail, Qazi Zain et al. 2015. "The Risk of Ischemic Heart Disease and Stroke Among Immigrant Populations: A Systematic Review." *Canadian Journal of Cardiology* 31(9):

1160–68. http://dx.doi.org/10.1016/j.cjca.2015.04.027.
Soril, Lesley JJ, Ted Adams, and Madeline Phipps-Taylor. 2014. "Is Canadian Healthcare Affordable ? A Comparative Analysis of the Canadian Healthcare System from 2004 to 2014 Les Soins de Santé Sont-Ils Abordables Au Canada ? Analyse Comparative Du Système de Santé Canadien de 2004 à 2014." *Healthcare Policy* 13(1): 43–58.
Spoont, Michele R. et al. 2014. "Impact of Treatment Beliefs and Social Network Encouragement on Initiation of Care by VA Service Users with PTSD." *Psychiatric Services* 65(5): 654–62.
Stafford, Mai, Bruce K. Newbold, and Nancy A. Ross. 2011. "Psychological Distress among Immigrants and Visible Minorities in Canada: A Contextual Analysis." *International Journal of Social Psychiatry* 57(4): 428–41.
Statistics Canada. 2016. "2016 Census Topic: Age and Sex." https://www12.statcan.gc.ca/census-recensement/2016/rt-td/as-eng.cfm (February 1, 2020).
———. 2017a. "Census in Brief Children with an Immigrant Background: Bridging Cultures." (98): 1–8.
———. 2017b. "Illustrated Glossary - Census Tract (CT)." https://www150.statcan.gc.ca/n1/pub/92-195-x/2016001/geo/ct-sr/ct-sr-eng.htm (January 10, 2022).
———. 2018. "Immigration and Ethnocultural Diversity in Canada."
———. 2021. "Tax Filers and Dependants with Income by Total Income, Sex and Age." https://www150.statcan.gc.ca/t1/tbl1/en/tv.action?pid=1110000801 (August 12, 2022).
Steele, Leah S, Carolyn S Dewa, and Elizabaeth Lin. 2007. "Education Level , Income Level and Mental Health Services Use in Canada : Associations and Policy Implications Niveau de Scolarité , Niveau de Revenu et Utilisation Répercussions Sur Les Associations et Les Politiques." *Health Care Policy* 3(1): 96–106.
Stepner, Michael. 2019. "The Insurance Value of Redistributive Taxes and Transfers."
Straus, Sharon E., Eric K.C. Wong, Trina Thorne, and Carole Estabrooks. 2021. "Recommendations from Long-Term Care Reports, Commissions, and Inquiries in Canada." *F1000Research* 10: 1–17.
Stronks, K., H. Van de Mheen, J. Van den Bos, and J. P. Mackenbach. 1997. "The Interrelationship between Income, Health and Employment Status." *International Journal of Epidemiology* 26(3): 592–600.
Sweetman, Arthur. 2017. "Canada's Immigration System: Lessons for Europe?" *Intereconomics* 52(5): 277–84.
Sweetman, Arthur, and Casey Warman. 2013a. "Canada's Immigration Selection System and Labour Market Outcomes." *Canadian Public Policy* 39(SUPPL.1).
———. 2013b. "Canada's Immigration Selection System and Labour Market Outcomes." *Canadian Public Policy* 39(SUPPL.1).
Tanaka, Atsuko. 2021. "The Effects of Sudden Health Reductions on Labor Market Outcomes: Evidence from Incidence of Stroke." *Health Economics (United Kingdom)* 30(6): 1480–97.
The Government of Canada. 2006. Minister of Public Works and Government Services Canada *The Human Face of Mental Health and Mental Illness in Canada 2006*. http://www.phac-aspc.gc.ca/publicat/human-humain06/index-eng.php.
The Standing Senate Committee on Social Affairs, Science and Technology. 2006. The Senate *Transforming Mental Health , Mental Illness and Addiction Services in Canada*.
Thornicroft, Graham, and Michele Tansella. 2004. "Components of a Modern Mental Health

Service: A Pragmatic Balance of Community and Hospital Care. Overview of Systematic Evidence." *British Journal of Psychiatry* 185(OCT.): 283–90.
Torres, Sandra. 2009. "Vignette Methodology and Culture-Relevance: Lessons Learned through a Project on Successful Aging with Iranian Immigrants to Sweden." *Journal of Cross-Cultural Gerontology* 24(1): 93–114.
Trevisan, Elisabetta, and Francesca Zantomio. 2016. "The Impact of Acute Health Shocks on the Labour Supply of Older Workers: Evidence from Sixteen European Countries." *Labour Economics* 43: 171–85. http://dx.doi.org/10.1016/j.labeco.2016.04.002.
Tricco, Andrea C. et al. 2015. "A Scoping Review of Rapid Review Methods." *BMC Medicine* 13(1). http://dx.doi.org/10.1186/s12916-015-0465-6.
Tu, Jack V. et al. 2015. "Incidence of Major Cardiovascular Events in Immigrants to Ontario, Canada: The CANHEART Immigrant Study." *Circulation* 132(16): 1549–59.
Um, Seong-gee. 2021. "Reforming Long-Term Care Requires a Diversity and Equity Approach." *Policy Options*. https://policyoptions.irpp.org/magazines/may-2021/reforming-long-term-care-requires-a-diversity-and-equity-approach/.
Um, Seong-gee, and Naomi Lightman. 2016. "Ensuring Healthy Aging for All Home Care Access for Diverse Senior." (July).
Um, Seong-Gee, and Naomi Lightman. 2017. "Seniors' Health in the GTA: How Immigration, Language, and Racialization Impact Seniors' Health." *Wellesley Institute* (May). www.wellesleyinstitute.com.
Vang, Zoua M., Jennifer Sigouin, Astrid Flenon, and Alain Gagnon. 2017. "Are Immigrants Healthier than Native-Born Canadians? A Systematic Review of the Healthy Immigrant Effect in Canada." *Ethnicity and Health* 22(3): 209–41. http://dx.doi.org/10.1080/13557858.2016.1246518.
Vayda, Eugene, and Raisa B Deber. 1984. "The Canadian Health Care System: An Overview." *Soc Sci Med* 18(3): 191–97.
Veldwijk, Jorien et al. 2014. "The Effect of Including an Opt-out Option in Discrete Choice Experiments." *PLoS ONE* 9(11).
Viruell-Fuentes, Edna A., Patricia Y. Miranda, and Sawsan Abdulrahim. 2012. "More than Culture: Structural Racism, Intersectionality Theory, and Immigrant Health." *Social Science and Medicine* 75(12): 2099–2106. http://dx.doi.org/10.1016/j.socscimed.2011.12.037.
Vogel, D.L. et al. 2007. "Seeking Help From a Mental Health Professional: The Influence of One's Social Network." *Journal of Clinical Psychology* 63(3): 233–45.
Vyas, Manav V. et al. 2017. "Lost Productivity in Stroke Survivors: An Econometrics Analysis." *Neuroepidemiology* 47(3–4): 164–70.
Vyas, Manav V., Claire De Oliveira, Audrey Laporte, and Moira K. Kapral. 2019. "The Association between Stroke, Integrated Stroke Systems, and the Employability and Productivity of Canadian Stroke Survivors." *Neuroepidemiology* 53(3–4): 209–19.
Waddell, Charlotte et al. 2019. "2014 Ontario Child Health Study Findings: Policy Implications for Canada." *Canadian Journal of Psychiatry* 64(4): 227–31.
Walsh, Sharon et al. 2019. "Public Preferences for Home Care Services for People with Dementia: A Discrete Choice Experiment on Personhood." *Social Science & Medicine*: 112675. https://doi.org/10.1016/j.socscimed.2019.112675.
Walter Rasugu Omariba, D., Nancy A. Ross, Claudia Sanmartin, and Jack T. Tu. 2014. "Neighbourhood Immigrant Concentration and Hospitalization: A Multilevel Analysis of Cardiovascular-Related Admissions in Ontario Using Linked Data." *Canadian Journal of*

Public Health 105(6): e404–11.
Wang, Lu. 2011. "Analysing Spatial Accessibility to Health Care: A Case Study of Access by Different Immigrant Groups to Primary Care Physicians in Toronto." *Annals of GIS* 17(4): 237–51.
Wang, Lu, Sepali Guruge, and Gelsomina Montana. 2019. "Older Immigrants' Access to Primary Health Care in Canada: A Scoping Review." *Canadian Journal on Aging* 38(2): 193–209.
Wang, P et al. 2007. "Use of Mental Health Services for Anxiety, Mood, and Substance Disorders in 17 Countries in the WHO World Mental Health Surveys." *Lancet* 370: 841–50.
White, Kellee, Jennifer S. Haas, and David R. Williams. 2012. "Elucidating the Role of Place in Health Care Disparities: The Example of Racial/Ethnic Residential Segregation." *Health Services Research* 47(3 PART 2): 1278–99.
Whitley, Rob et al. 2017. "Mental Health Status, Health Care Utilisation, and Service Satisfaction among Immigrants in Montreal: An Epidemiological Comparison." *Canadian Journal of Psychiatry* 62(8).
Wiens, K et al. 2020. "A Growing Need for Youth Mental Healthservices in Canada: Examining Trends Inyouth Mental Health from 2011 to 2018." *Epidemiology and PsychiatricSciences* 29(e115): 1–9.
Wilkinson, Andrea et al. 2019. "Overall Quality Performance of Long-Term Care Homes in Ontario." *Healthcare quarterly* 22(2).
Wolff, Jennifer L., Judith D. Kasper, and Andrew D. Shore. 2008. "Long-Term Care Preferences among Older Adults: A Moving Target?" *Journal of Aging and Social Policy* 20(2): 182–200.
Wong, Irene O.L., Benjamin J. Cowling, Su Vui Lo, and Gabriel M. Leung. 2009. "A Multilevel Analysis of the Effects of Neighbourhood Income Inequality on Individual Self-Rated Health in Hong Kong." *Social Science and Medicine* 68(1): 124–32. http://dx.doi.org/10.1016/j.socscimed.2008.09.064.
Wong, Suzy L., Heather Gilmour, and Pamela L. Ramage-Morin. 2016. "Alzheimer's Disease and Other Dementias in Canada." *Health Reports* 27(5): 11–16.
Zaresani, Arezou. 2018. "Return-to-Work Policies and Labor Supply In." *AEA Papers and Proceedings* 108: 272–76.
Zimmer, David M. 2015. "Employment Effects of Health Shocks: The Role of Fringe Benefits." *Bulletin of Economic Research* 67(4): 346–58.
Zimmerman, Frederick J. 2005. "Social and Economic Determinants of Disparities in Professional Help-Seeking for Child Mental Health Problems: Evidence from a National Sample." *Health Services Research* 40(5 I): 1514–33.
Zondervan-Zwijnenburg, Maria A.J. et al. 2020. "Parental Age and Offspring Childhood Mental Health: A Multi-Cohort, Population-Based Investigation." *Child Development* 91(3): 964–82.