Immigration, sex/gender, and patterns of access to primary care in Canada

by

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Abstract

Background: Primary care provides entry to the Canadian health care system, subsequent coordination, and integration of all levels of care. People who have immigrated to Canada may experience difficulties accessing primary care, but gaps in conceptualization and operationalization of "access" has resulted in conflicting results and uncertain policy implications. How the interaction of immigration and sex/gender impacts patterns of access to primary care has also been understudied.

Objectives: The study examines how patterns of access to primary care differ between immigration groups and how sex/gender and immigration interact to shape patterns of access.

Methods: I used 2015-2018 Canadian Community Health Survey Data to describe patterns of access to primary care among adult residents of Canada (age 18+), categorizing variables related to primary care access by stages of the Levesque framework including perception and desire for care, healthcare seeking, reaching and utilization. I compared patterns of access between recent immigrants (people in Canada for less than 10 years, including both temporary migrants and permanent immigrants), long-term immigrants (in Canada 10+ years), and non-immigrants (people who were born in Canada). I used logistic regression models to calculate adjusted and unadjusted odds estimates for each variable related to primary care, and to explore interaction effects of sex/gender and immigration.

Results: Patterns of access among recent immigrants significantly differed from long-term and non-immigrants with respect to perception and desire for care, seeking and utilization. Similar patterns were observed between long-term and non-immigrants except at the utilization stage. Interaction effects of gender and immigration were more pronounced in earlier stages of health care seeking but not reaching nor utilization.

Conclusion: The Levesque framework of health services use was important in highlighting differences among immigration groups along the whole process of obtaining care. Interventions focused on improving approachability and acceptability of services and addressing gendered barriers, especially among recent male immigrants, are important to improve access to primary care.

Keywords: Immigration; Primary care; Access; Gender; Sex

Dedication

This thesis is dedicated to my mother, for her love, prayers, care, and support. Thank you for choosing me, thank you for silently cheering me on. I would also like to honor Dr. Hermann Gmeiner and SOS Children's Villages International for their vision that made it possible for me to have an education and a life dared to dream. I am grateful to God for life and grace on this journey and forever indebted to friends, family and cheerleaders that have been with me through it all, I am grateful.

Finally, I would like to dedicate this body of work to the amazing health care providers across the country for their bravery during such a time when everyone is looking to them for life saving care. Thank you for your service and I hope we will once look back to this time and forever remember you as our heroes.

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List of Acronyms

CCHS	Canadian Community Health Survey.
PUMF	Public Use Micro-Data Files
SES	Socioeconomic Status
SFU	Simon Fraser University

Chapter 1.

Introduction

Understanding access to primary care across populations is important to reduce disparities in health and access to other health services. Primary care is intended to be a first point of patient contact within the health care system in Canada. Besides providing an entry point to the health care system, primary care providers deliver core medical and preventive services, and help coordinate and integrate patient care (1). Primary care services may also include prevention and treatment of common diseases and injuries, basic emergency services, primary mental health care, healthy child development, and primary maternity care (2). These services may involve nurses and nurse practitioners, family physicians, social workers, and other allied health care providers.

Access to primary care services may be particularly important for people who have immigrated to Canada be it either temporarily or permanently, as primary care services can ideally meet immediate needs and assist with navigation when other health care services are needed. There is, however, conflicting evidence on patterns of access to primary care among immigrant groups, with some studies observing similar patterns of access to care among immigration groups (3–5), while others document barriers and gaps in access (6–10). Gender and sex also shape how people use and access health care services and may interact with immigration to influence access to primary care services (6,11). However, given the restrictions of quantitative data used which only offers the binary categories of ‘men’ and ‘women’ on the survey, literature reviews and analysis in the study is limited to articles on ‘men’ and ‘women’ and not inclusive of other genders

This study adds further evidence by using data from the Canadian Community Health Survey to compare patterns of access to primary care services among immigrant and non-immigrant groups. I use the Lévesque framework to conceptualize access, which identifies stages of perception of need and desire for care, seeking, reaching, and utilization as part of the process of obtaining care (12). I explore how stages of the process of obtaining care differ between recent immigrants, long-term immigrants, and non-immigrants, and whether gender interacts with immigration to shape patterns observed. Ultimately, the study can inform policy interventions aimed at strengthening access and

supporting the diverse health care needs of immigrants within the Canadian health care system. Specific research questions are as follow:

1. How do patterns of primary care access compare among recent immigrants, long-term immigrants, and non-immigrant groups?

2. Does sex/gender interact with immigration groups to shape patterns of access to primary care?

Here recent immigrants include permanent and temporary residents who have or moved to Canada within the last ten years, while long-term immigrants are those who have lived in Canada for ten or more years.

To answer these questions, I use data collected through the Canadian Community Health Survey (CCHS). The survey is an annual, cross-sectional national survey conducted by Statistics Canada. The survey is instrumental in addressing these questions as it is provides current, detailed and uniform information about health in every province and territory, and includes a range of questions related to primary care access, including several newly-added since 2015 (13). It is a representative sample of 98% of the Canadian population age 12 years and older living in private dwellings, excluding those residing on reserves and other Aboriginal settlements, full-time members of the Canadian Forces, institutionalized populations, and those residing in remote regions. The sampling frame is based on place of residence and not immigration status, and so it includes both temporary and permanent immigrants in Canada. I accessed data using Statistics Canada Public Use Micro-Data Files and used 2015-2018 data cycles pooled into one dataset.

In Chapter 2, I provide an overview of literature describing immigration and access to primary care. I explore research that documents patterns of access to primary care by immigration status, length of time in Canada, and gender or sex. Further on, I describe theoretical frameworks used to study access to care and explain how and why the framework proposed by Levesque et al. (12) can be used to study immigration and gender-based differences in the process of accessing primary care.

Chapter 3 is a stand-alone empirical research chapter answering the first research question: How do patterns of primary care access compare among recent immigrants, long-term immigrants, and non-immigrants? In this chapter I also provide a brief

background on existing patterns of access to care between immigrants and non-immigrants and highlight the gaps in research.

Chapter 4 is another stand-alone manuscript where I answer the second research question: Does gender interact with immigration groups to shape patterns of access to primary care? Within this chapter, I also discuss concepts of gender and sex along with plausible explanations for how the two may shape patterns of access to primary care.

Chapter 5 is a concluding chapter that integrates findings from chapters 3 and 4 to highlight overarching conclusions and recommendations for policy and primary care service planning. This chapter also provides a summary of strengths and limitations of the analyses in chapters 3 and 4.

Chapter 2.

Background and literature review

2.1. Primary care and immigrant health

In Canada, primary care serves as a first point of access to health care, and supports continuity of care and coordination to specialist care when needed (14). Strong systems of primary care have been associated with broader health system performance and improved health equity (15,16). Ideally, longitudinal relationships allow primary care providers to understand the contexts in which patients live so as to respond effectively to their needs (1).

By definition, at some point everyone needs access to primary care, and access to primary care may be particularly important to immigrant groups as their health is reported to decline overtime due to difficulties accessing needed care among other factors (17). Primary care should be positioned to provide immediate and timely access for immigrants and support the process of navigating an unfamiliar system when services are needed elsewhere. Access to primary care is crucial for connecting with the health care system which is central to the immigrant settlement process in Canada, and may ultimately influence health outcomes among immigrants in Canada (1,18). Given selection processes imposed as part of the immigration system, on average immigrants to Canada are healthier than people born in Canada (labelled the “healthy immigrant effect”), but evidence shows a decline in health status among immigrants with increased stay in Canada (19,20). This decline has been attributed in part to challenges immigrants experience in accessing health care including language, cultural and navigation barriers (5,21,22). Immigrants who come from different countries, cultures, and migration histories need responsive and timely access to primary care that meets their needs and supports continued health (23).

2.2. Defining migration and immigration

How migration and immigrants are defined has significant implications for the study of patterns of access to care among groups. A migrant is defined as a person who resides

in a country other than their country of origin, either permanently or temporarily (24). An immigrant is a person who permanently resides in a country other than their country of birth (24).

At the Canadian federal level, an immigrant is defined as a person who is not born in Canada but permanently resides in Canada and has been granted the right to live in Canada by immigration authorities (25). Immigrants in Canada may include persons that have recently immigrated to Canada, resided in Canada for a number of years and those who have been granted citizenship (25). Immigration, Refugees and Citizenship Canada classifies immigrants into four main categories: economic immigrants, immigrants sponsored by family, refugees and other immigrants (26). There are two federal administrative categories of foreign nationals arriving in Canada. Temporary residents, people who are visiting, studying or working in Canada and maintain their own nationality and ability to return to their country of origin (migrants) and permanent residents, people who come to Canada to resettle (immigrants) (26).

The data source used in my analysis samples are based on place of residence, not status or citizenship, and so may include both temporary and permanent residents. When I describe recent immigrants in my analysis this category may include both permanent immigrants and temporary migrants. When describing published literature, I use the same language as study authors.

2.3. Immigration in Canada

Migration is a natural human phenomenon that is inevitable due to several migratory push and pull factors, including the search for better economic opportunities and standards of living (27). Internationally, migration is growing, increasing from 221 million migrants in 2010 to 272 million people in 2019, including both temporary migrants and immigrants resettling permanently in countries other than their countries of birth (28). Today, 3.5% of the world's total population reside in a country other than their country of birth compared to 2.8% in 2000 (28,29). Globally, 52.0% of immigrants are men and the median age is 39 (30). Among all countries, Canada has the 8th highest percentage of international migrants (30). Immigrants are projected to comprise between 24.5% and 50% of Canada's population by 2036 (26).

Due to an aging population and low fertility rate, migration has been officially encouraged to ensure that Canada's population and labor force continues to grow (26).Canada has actively promoted immigration as a strategy to meet domestic policy objectives, including sustainable growth and addressing labour shortfalls (31). Migration to Canada grew rapidly during the 20th century (31). With the building of the transcontinental railway, the settlement of the prairies and expanding industrial production, there was an intensified demand for labor which was met with aggressive recruitment campaigns by the Canadian government to attract workers. By 1912, there were more than 2.9 million immigrants, up from 420,000 in 1900 (31). Currently, there are 7.5 million immigrants in Canada according to the 2016 population census (25,30). This makes up 21% of the total Canadian population (1 in 5 people) (25). Of the 7.5 million current Canadian immigrants, 1.2 million immigrated between 2011 and 2016 (25). Between 2017 and 2018, international immigration accounted for 80% of population growth in Canada (26). The number of immigrants living within Canada is projected to reach 9 million in 2021 and 10.2 million in 2026 (26). With the increased and active recruitment of immigrants to support the Canadian economic growth through temporary foreign workers, international students and care-giver migrants (26,32,33), supporting immigrants' access to needed health care is a moral and human rights issue. Canada has signed the Global Compact for Migration (34) which commits countries to uphold universal human rights of migrants, including through safe access to services including health care.

2.4. Immigration, health, and health care access in Canada

In the Canadian context, various factors have been shown to shape the health of immigrants including where and how immigrants lived in their original home country, how they immigrated (i.e. under which immigrant category they were admitted into Canada) and where they immigrated to (35). Their health is also influenced by post-migration factors and structural determinants of health in Canada including integration into their new place of residence, income, employment, level of education, racialization as well as the accessibility and responsiveness of health practitioners and the health care system to immigrants' health needs (35). Primary care may play an important role in addressing these needs, but studies about access to primary care report conflicting results with respect to measures including having unmet need, having a regular medical provider, having contact with a primary care provider, and use of emergency departments (3–5,17).

Within quantitative literature, a number of studies compare patterns of access between immigrants and non-immigrants and observe no difference. A longitudinal study by Quesnel-Vallée and Lynch which stratified immigrant groups by sex and race, found that after adjusting for covariates, immigrant men and women had similar odds of having a regular health care provider as Canadian born individuals, and that over a 12-year period, white male immigrants and non-white female immigrants reported fewer unmet health care needs in the past 12 months (3). Laroche also found similar patterns of access to health care services between immigrants and non-immigrants, number of consultations with a general practitioner or nurse (4). Wu and colleagues who use unmet need as a proxy for access found that after controlling for differences in health seeking characteristics, immigrants had a 12.0% (95% CI:6-18) lower risk for reporting unmet need than non-immigrants (5).

In contrast, Sanmartin and Ross found recent immigrants (<5 years in Canada) were two and a half times more likely to have difficulties accessing immediate care (family physician, walk-in clinics and hospital emergency rooms) for a minor, non-life-threatening health problem than Canadian-born respondents (6). Additionally, increasing time since immigration was associated with better access to health care including having a regular place of care(6). Immigrants who have been in Canada for more than five years were less likely to report difficulties accessing care (6). Overall, these studies support the importance of exploring time in Canada in research examining immigration and access to care. They may also indicate a lack of attention to the experiences of temporary migrants who may face added barriers to care.

There are also conflicting results observed within quantitative studies based on types of data sources used. Kalich and colleagues summarise literature in a scoping review to examine what is known about the barriers adult immigrants encounter when accessing Canadian health care services (9). The review found that studies that analyzed secondary data (e.g. government survey data, administrative data) revealed no differences in rates access to health care between immigrants and non-immigrants, with the exception of access to cervical cancer screening (9). On the contrary quantitative studies that used primary data found that immigrants were less likely to have access and use general practitioners compared to Canadian born persons (9,17,36,37) .

Major differences in the literature comparing patterns of access to care between immigrants and non-immigrants also arise between quantitative and qualitative studies. For example, while quantitative studies in the review reported barriers mostly associated with lack of information about how to access or navigate services and long wait times, qualitative studies also reported access barriers including linguistic and cultural barriers (9). There were also observed differences in focus of studies/topics between quantitative and qualitative studies. While quantitative studies sought to determine if there were existing differences in rates of access to health care, qualitative studies included research concerning health care access experiences (9).

While quantitative studies reported some barriers to accessing care among immigrants, qualitative research provides broader explorations into these barriers. Highlighted barriers and difficulties in accessing timely and needed health care include, language barriers, lack of information about how to access services, differential expectations, type of first contact service used, economic and geographical barriers and lack of culturally appropriate care (5,6,10,38). A qualitative study by Woodgate and colleagues examined experiences of African immigrant and refugee families in accessing primary health care services in Manitoba. Results in the study reported barriers including lengthy wait times, shortage of health care providers, high cost of medication and non-basic health care (7). Importantly, the study also highlights the struggles of African immigrants and refugees associated with adjusting to the new and unfamiliar environment which affected their access to primary health care including; challenges with transportation, weather, employment, language and cultural differences (7). A study by Marshall, Wong and Levesque reports continued unmet need among Punjabi and Chinese speaking immigrants, participants in the focus groups reported unmet health care needs in relation to barriers to accessing care, lack of health system literacy and unresponsive health system compared to their expectations (8). A comparative qualitative study by Ngwakongwi and collogues compares experiences of French speaking immigrants and non-immigrants in accessing health care services (39). In their study, they observe that both immigrant and non-immigrant participants in the study reported language barriers and difficulties finding a family doctor. However, recent immigrants in the study reported a lack of insurance coverage for drugs, transportation difficulties and limited knowledge of the health care system as major barriers to accessing required health care (39).

Given that qualitative studies document persistent barriers and unmet need in accessing primary care among immigrant populations, there is a need to further scrutinize quantitative research that finds no difference in access. Differences in access may also be obscured by lack of attention to length of time in Canada and inclusion of temporary migrants in analysis. Another major explanation for these differences is that quantitative studies have not adequately conceptualized access nor captured difficulty in the process of system navigation to realize access. For this reason, in section 2.7 I describe theoretical frameworks that may be useful in refining conceptualization of access and intersecting factors such as gender that may also shape access. In the section that follows I explore gender, sex, and access in detail.

2.5. Sex, gender, and access to primary care

Gender and sex may interact with migration to shape how people interact with the health care system (40–42). Sex describes a multidimensional biological construct that encompasses anatomy, physiology, genes and hormones (43,44). Gender describes socially constructed roles that pertain to how people perceive themselves and express themselves vis a vis those roles (45). Gender includes expressions and identities which are influenced by social and cultural environments (43). While biological sex may shape need for health services, gender likely plays a greater role in shaping how people experience and navigate health care.

Most published Canadian studies on access to primary care using quantitative data use self-reported binary categories that are typically ambiguous with respect to whether they are measuring legal sex, sex assigned at birth, and/or gender. Within this literature, people who self-identify as women report using health care services more than men and have higher odds of reporting a general practitioner consultation, of having multiple general practitioner visits, of having longer consultations and of having a regular family physician than men (45). Self-identified women report more visits with a primary care provider for both physical and mental health concerns than men (46). Men are less likely to have a regular physician than women, and reasons for not having a family doctor differ between men and women. For example, men reported a single main reason; they did not try to contact a family doctor compared to women who reported several reasons such as, family doctors were not taking new patients or their family doctor had retired or left (47). There are also observed gender differences in the location of primary care services. Men

are reported to be less likely than women to report a visit to the doctor's office and more likely than women to have used the emergency unit as their first contact of care. The likelihood of women contacting emergency services was about half that of men (47).

2.6. Sex, gender, migration, and access to care

While there has been a substantial number of studies on patterns and barriers to care in relation to gender and sex in Canada, fewer studies examine gender or sex in the context of migration, and fewer still include male immigrants. One study found that 87% of female recent immigrants reported having a regular medical doctor compared to only 77% of male recent immigrants having a regular medical doctor, which is similar to the patterns reported among non-migrants (11). Although women are generally more likely to use primary care services more than men, they are also more likely to experience difficulties accessing urgent and routine care for minor problems (6). Immigrant woman are even more likely to report barriers in accessing immediate and routine care than non-immigrant women. For example, recent immigrant women are ten times more likely than Canadian born women to identify barriers to care such as transportation, language, cost or lack of information about where to go for care (6). Research is more limited among immigrant men than women. In a meta-analysis of barriers to care among immigrant populations in Canada, Ahmed, Shommu and colleagues found that out of all 27 studies, fourteen focused on barriers faced by immigrant women alone and the remaining 13 included both men and women with no studies focused on men's needs (10). Given observed differences in access between men and women, additional research examining how gender and immigration interact to shape access is warranted. In the following sections, I will connect the identified gaps in literature to conceptual frameworks that can be used to unpack the concept of access, including among groups defined by immigration and gender.

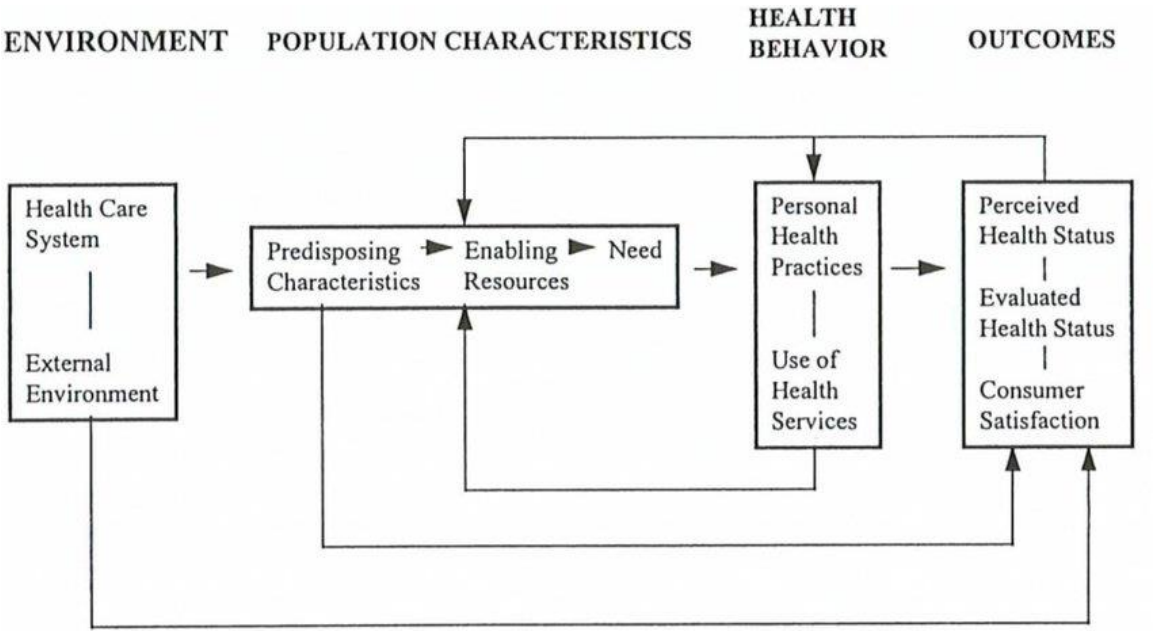
2.7. Theoretical frameworks to guide understanding of health care access

How health care access is conceptualized and operationalized in health-services research is important to examining patterns of access. In this section, I explain limitations of the traditional Social Behavioural Model of Health Service use by Andersen et al. (48)

and how it can be used along with a newer framework proposed by Levesque et al. (12) to respond to gaps in health services literature and examine patterns of access to care among immigrants.

Within the field of health services research, the Social-Behavioural Model of Health Services Use by Andersen et al. (Figure 2.1) is a foundational conceptual model that has been previously used to explain individual and population differences in health care use (48). The model identifies three sets of predictors of health care use: predisposing characteristics, enabling resources, and need (48). **Predisposing characteristics** include demographic variables such as gender, marital status, age, and education level. **Enabling resources** refer to social, organizational, and structural resources that serve as conditions enabling service utilization. These include regular source of care and nature of source, transportation, travel time to and waiting time for health care (48). **Need** represents both perceived and evaluated need for health care services (48). Perceived health status is defined by how people view their own general health and functional state and evaluated need represents professional judgement about health status and need for medical care (48).

Figure 2.1. The Andersen Model of Health Care Utilization (Andersen, 1995)

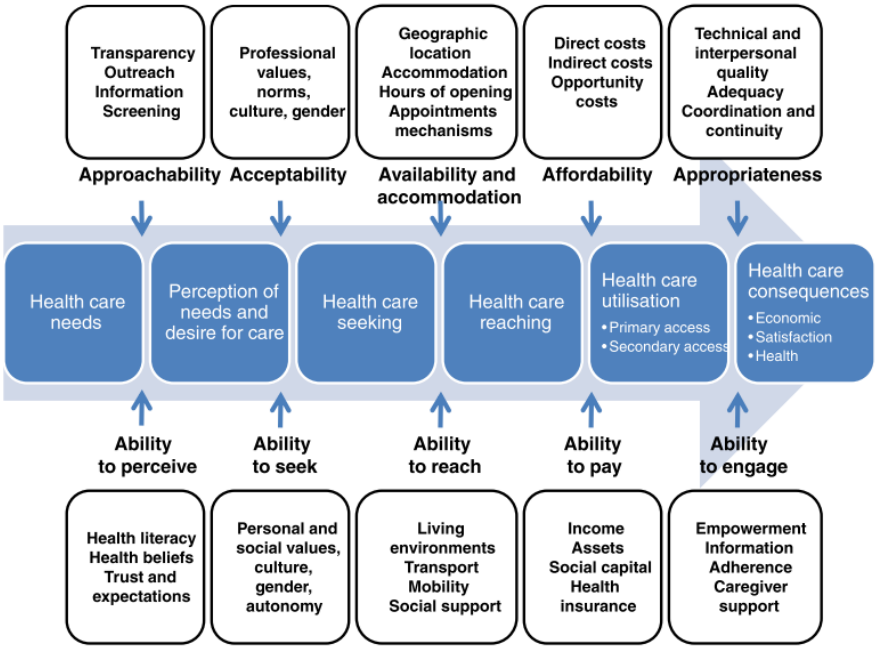


The Andersen model is helpful in accounting for predisposing characteristics and enabling resources, which supports the examination of a broad range of individual and

social determinants that relate to service use. However, the conceptualization of how people actually access services is limited, in that “use of health services” appears to follow directly from need. For this reason, the Andersen model is of only limited use in understanding experiences of health care system navigation and access.

More recently Levesque et al. (12) put forward a conceptual framework that more fully explores the concept of access. The authors define access as the opportunity to reach and obtain appropriate health care services in situations of perceived need of care. This conceptualization of access is not limited to the availability of health services, and includes both realized and potential access(12). Levesque and colleagues distinguish health care needs, perception of needs and desire for care, health care seeking, reaching and utilization within an interlocking pathway of access (Figure 2.2). It is helpful in exploring access to care among immigrants in Canada in that it breaks down ‘health care use’ from Anderson into actual stages that enable a person to contact and obtain health care.

Figure 2.2. A conceptual framework of access to health care (Levesque et al. 2013)



The Levesque framework is also useful in that it can help identify barriers and inform interventions to improve access. It specifies both individual characteristics (demand side factors, pictured below the blue arrow) and features of the health system (supply side factors, pictured above the blue arrow), relevant to how an immigrant could move through

each stage. For example, it may highlight that even where services exist, immigrants may find them unapproachable or unacceptable due to lack of information and outreach, or lack of attention to cultural relevance of care (12). It is therefore particularly helpful to examine patterns of how immigrant populations navigate primary care.

Within my thesis, I use the Andersen model to identify explanatory covariates that may be associated with immigration and that also shape access to health care. I supplement this with the more detailed Levesque framework to guide the selection and categorization of outcome measures related to primary care access from the CCHS. In the sections that follow I explore in more detail how the Levesque framework may be applied to explore differences in access by immigration and sex/gender.

2.8. Application of the Levesque conceptual framework in the context of immigration, sex, and gender

The framework developed by Levesque at al. was not developed with examination of health care service use in the context of immigration in mind. That said, the major stages of the framework are useful in guiding consideration of how experiences of migration may shape access to health care generally and primary care specifically. In the section that follows, I describe each stage and then consider first how immigration and then how a person's sex or gender may influence access to care at this stage, with reference to published literature.

I discuss demand-side factors in detail since migration, sex, and gender are associated with the populations accessing care. However, the supply side of the model will later be useful in interpreting findings to inform interventions and policy responses to any observed differences in access.

Health care needs

Health care need is defined in relation one's perceived health status, the processes, and mechanisms available to meet the identified need and the resources that enable one to successfully go through the process of meeting their need (12). The perceived gap in health state that creates a need for health intervention or care can be shaped by cultural understandings of health, health literacy and beliefs around what constitutes good health.

Immigration

There could be various reasons to believe that health status, and corresponding need for health care may differ between immigrants and non-immigrants and may change as immigrants spend more time spent in Canada. A large body of literature makes comparisons of health status between immigrants and non-immigrants, and in general documents better health among immigrants, or a “healthy immigrant” effect (19,35,50). While on arrival immigrants have better health than non-immigrants, over time their health has been observed to converge to match the health of the host country or even become worse than the health of native-born populations. Immigrants in Canada were found to have lower rates of all-cause mortality as well as mortality from cardiovascular diseases, accidents, poisoning, violence, diabetes and respiratory diseases (51). Bold and Danforth report patterns using the Health Utilities Index with 33.8 % of immigrants less than 5 years rating their health as excellent and then dropping to 26.7% among immigrants with residence in Canada between 0-9 years and to just 22.1 % with the longest duration of residence (10+ years) (52). Various explanations for the healthy immigrant effect and attenuation of health over time have been explored. Highlighted explanations include, health screening and restrictive migration policies imposed by recipient countries immigrant self-selection, and healthy behaviors prior to migration, followed by adoption of new country’s less healthy behaviors (3,4).

Changes in health status over time since arrival are also likely to shape need for services. Carrasco and colleagues found that on arrival only 3.5% of immigrants reported unmet needs and poor health status, a significant and steady increase in self-reported poor health status as well as unmet health needs was reported during the following four years (53). This means that in understanding patterns of access to health care through comparisons between recent immigrant, long-term immigrant, and non-immigrant populations, it is important to consider health status and other determinants of health care need.

Sex/gender

Biological sex may shape need for health care, but gender may have more pronounced impacts on all stages of the Levesque model due to the social, structural, and systemic construction and influence of gender. Sex may shape health care needs related

to pregnancy and childbirth (54). In addition, genetic, hormonal and metabolic differences have been shown to influence the susceptibility to certain diseases across sex lines (44). Examples include susceptibility to heart diseases and sex specific cancers (44).

Gender is known to have a significant impact on one's social economic status which in turn affects one's health status and health needs (55–57). For example there are gender differences in occupation and social roles between men and women which may result in differences in income, education, nutrition, occupational exposures and stressors that may impact health status and health care needs (58).

Perception of need and desire for care

Within the framework, perception of need and desire for care is the first stage when considering use of health care services. On the supply side, approachability encompasses factors such as geographical location of place of care and responsiveness of care providers to specific patient population demands. Demand side factors includes a person's level of knowledge and awareness about the health care system and available services intertwined with one's beliefs, trust, and prior experiences with the health care system

Immigration

Factors that may impact how approachable a patient finds a service include transparency regarding available treatments and services and the extent of outreach activities to reach various social and geographical population groups.

Beliefs related to health and sickness and past experiences and expectations of health systems may differ between immigrants and the Canadian born population, and so perception of need and desire for care may also differ (35,59). For example, in a qualitative study that explored perceptions of unmet health care needs among Punjabi and Chinese speaking immigrant participants, participants reported higher unmet need due to past experiences with different health systems that provided additional components of health care than those covered within the Canadian health care system (8). Previous experiences especially among immigrant women have shaped their expectations of health care systems as their needs or expectations were not met during previous interactions (9). Another study observed that Canadian-born citizens and long-term immigrants may be better able to advocate and have higher expectations compared to recent immigrants with

low expectations, which in turn form perceptions and beliefs that care would be inadequate and thus impact perceptions of need and desire for care negatively (9).

Sex/gender

The social construct of gender and socialized roles across the gender spectrum may contribute to gendered experiences of need and desire for care. As a result of gender socialization men and women may differ in perception of symptoms and the evaluation of severity. For example, in a study that examines illness orientation as a determinant for sex differences in utilization of medical care in the United States found that compared to men, women score significantly higher interest and concern with health, and report more symptoms (60). Women may be more ready to express need and desire for care than men (61). With gender roles, women are also more frequently involved in child care including arranging health care for their children which may increase health care visits and as a result shape their own perception of needs (41,61,62). On the contrary, a study by Dominic Azuh and colleagues explores the socio cultural factors of gender roles in women's health care utilization in South West Nigeria, and observed that due to dominant patriarchal cultures in some societies, women's health care needs and decisions are predominantly decided by the man (63). As such, gendered perception of need and desire for care may vary across cultures.

Health care seeking

This stage describes the process of following through to seek desired care and the expression of the intent to obtain desired care. On the supply side, social and cultural competencies, gender, language, as well as the values and beliefs of service providers relating to their practice and the system may determine how acceptable the services are to potential users (12). Demand side factors that may influence whether one goes out to look for desired care may include social cultural factors, personal beliefs, and norms. These factors are important at this stage as they impact whether one expects available services will be acceptable and appropriate and thus impact whether they take the step to go after these services.

Immigration

Immigrants have diverse social and cultural values that may determine whether they deem available services as accepting and appropriate (9,10). Given demand-side differences in language, culture and social values between immigrants and Canadian born residents, and demand-side differences in whether and how systems are oriented to deliver acceptable care to immigrants, health care seeking may differ between immigrants and non-immigrants. In a scoping review on immigrant experience of health care access by Kalich et al., the most reported barriers to accessing care were linguistic barriers, dissatisfaction with patient/provider interaction and cultural barriers (9). Related to cultural barriers was significant reporting of barriers to accessing care due to a lack of female health care providers in qualitative studies involving female immigrants (9).

Sex/gender

Health seeking behaviors may also vary along the gender spectrum (60). Cultural and patriarchal norms for example perpetuate masculine identity that affects men's decision making to seek health care even when it is required. Societal gender expectations where masculinity is associated with being stoic and strong may prevent many men from reaching out for health care when they need it (44). Such expectations on men result in a decrease in required care which could mean fewer men reporting to seek, reach or utilize health care resources. For example, the fear to admit weakness may prevent men from taking health promotion messages seriously or seeking care when health problems arise (44). Adherence to masculine ideals often result in avoidance and negligence of health care, risky lifestyles and ultimately lower health care seeking behavior among men (64–66).

In addition, given the gender roles and responsibilities of child rearing and care placed on women, men may be less likely involved in health care seeking for their family. Due to these gender roles and the expectations that women are responsible for health care in the family, health promotion and outreach programs target women more than men (44,67).This may further perpetuate women being more involved in health care seeking behavior than men.

Health care reaching

Distinguished from health care seeking, health care reaching defines the initial point of contact with the health care system or health care professional. This stage encompasses factors that affect personal mobility and physical accessibility to service providers. Aspects of this stage that hinder availability and accommodation include unequal geographic distribution and allocation of health care resources (12). On the supply side, this includes accessibility and availability of the both the physical spaces and the service providers, such as geographic location, hours of opening, appointment mechanisms, and capacity of health resources to provide comprehensive care, density and concertation of the physical space, models of care and qualification of service providers. Demand-side factors that may hinder one's ability to reach care include transportation resources and costs, living environments, physical mobility, and extent of social support to allow one to reach services.

Immigration

Compared to Canadian born residents and people who have lived in Canada for some time, recent immigrants in particular may have challenges navigating the transit system and the entire health care system to reach providers. Immigrants may also be more likely to have working hours that limit timely access to care. For example, due to precarious work, immigrants may have work schedules that conflict with regular business hours and medical appointments and lack access to paid sick leave (23). In a quantitative study that used surveys from the National Immigrant Support Centres between 2015 and 2016, immigrants reported fear of losing their jobs over a medical appointment (68). Therefore, with poor flexible working hours and conditions at work, inability to obtain formal work and inconvenient travel time, immigrants and particularly undocumented migrants report difficulty reaching health care services when needed (68–70). Due to highlighted barriers to reaching a regular family doctor, immigrants may also be more likely to use emergency departments and walk-in clinics, but there is limited literature on these aspects of service use within Canada but some existing evidence elsewhere in the world(71,72).

Sex/gender

Reaching health care is significantly influenced by structural factors associated with gender. Gender roles and expectations may cause differences in access to resources

needed to reach care, including access to transportation, ability to access care at different times of the day among many others (63). Due to gendered inequality in income, level of education and broader social economic status, women may encounter cost related barriers such as travel time, transport expenses and accessibility related challenges of moving with children, all of which may hinder their timely access to required health care services (58).

Health care utilization

Within the Levesque framework this stage relates to the economic capacity to pay for services once people have physically reached the desired health care provider or service (12). On the supply end, affordability of available services and access to insurance may impact one's ability to use required health care services. The direct price of services and associated costs of using services such as transport costs factoring accessibility of service as well as payment models for service use are all supply side factors that may affect one's ability to use services. Demand side factors that may hinder one's ability to pay for services may include health care insurance coverage, existing opportunity costs or other pressing needs that compete with their need for care, social economic status, and overall capacity to generate economic resources.

Immigration

While long term immigrants and Canadian born residents have health insurance coverage, possibly combined with other assets and accumulated wealth, recent immigrants and people with precarious status may lack coverage altogether (73). Additionally, recent immigrants may have more competing economic needs and fewer resources to afford required services. In Quebec, British Columbia and New Brunswick, there is a waiting period of three months before new residents are eligible to apply for the publicly required health care insurance (74). Therefore, cost related barriers are plausible, especially among recent immigrants with limited economic resources and people with temporary status including workers, students and their families (23).

Sex/gender

Overall, women are more likely than men to utilize health care services. Research by Nabalamba, Millar, Deveugele and colleagues confirm that even after adjusting for

increased health care needs that are particular to women, women visit family physicians more and report to have longer consultations than men (46,75,76). Still, gendered differences in socioeconomic status between men and women may still shape health care use, and structural and systemic factors such as patterns of social security provision and employment conditions are also gendered. Income gaps and gendered roles may mean women lack economic resources to pay for required health care (63). Men are more likely to find formal employment and to receive employment related health care benefits than women (56,57). Combined, this may shape gendered differences in ability to pay for required health care services.

Health care consequences

This stage is specific to patient experiences of care offered and patient evaluation of the care received. This stage includes the ability to engage which encompasses a person's ability to fully participate in the decision making and treatment pertaining to their health need. The ability of patients to engage in care is intertwined with the appropriateness of health care services provided. This may include supply side factors such as the timeliness or amount of care provided relative to need, correct health evaluation and assessment as well as interpersonal quality of health care provider.

Demand side factors that may affect one's capacity and motivation to participate in care and see to its completion include knowledge about the services provided, health literacy, language, and capacity to, and availability of social support or care givers. Supply side factors that may interplay at this stage include cultural safety, health care providers' technical training, coordination and continuity of care and provider's language and overall communication proficiency (12).

However, patient experiences of primary care are not routinely measured in available data. As my thesis focuses on access to services, consequences and experiences of care are beyond the scope of my analysis.

2.9. Summary of research gaps

Overall, there are two main gaps in research pertaining to the study of patterns of access to primary care immigration that I seek to address in my thesis.

First, there are inconclusive and conflicting results on whether there are differences in access to primary care between immigrants and non-immigrants. As is detailed in the literature review above, the contradiction in previous studies in the literature may be explained by the differing conceptualization and operationalization of access in quantitative and qualitative studies. Another plausible explanation for the contradiction and variance in results is the differing conceptualization and measurement of immigration particularly pertaining to length of stay and of immigrant groups, including whether migrants with temporary or precarious status are part of the study population. Finally, quantitative studies may not have adequately conceptualized access or examined the process of obtaining care from the initial perception of need through to actual utilization of care. Here, the Levesque framework may be helpful in distinguishing stages of access from ultimate health care use. This information is critically important to designing services that are more responsive to immigrant population needs.

Second, there is a need for further examination of gender-based differences in patterns of access to care among immigrants and non-immigrants. There is a particular need for research that explores access to primary care as experienced by male immigrants in Canada (10)

To address these gaps, I will use cross sectional data collected through the Canadian Community Health Survey, including questions newly added in 2015 about access to primary care. The following two chapters describe this analysis.

Chapter 3.

Exploring patterns of access to primary care among immigrants and non-immigrants

3.1. Introduction

Background

In Canada, primary care is intended to be the first and main point of access to health care and to support for continuity and coordination of care when specialist or hospital services are needed (14). As a starting point for accessing health care, primary care may play a particularly important role for people who have recently arrived in Canada. Difficulties accessing primary care may impact overall access to the rest of the health care system, especially for immigrants who may have initial difficulties navigating the health care system (11,77,78).

There are inconclusive and conflicting results on patterns of accessing primary care among immigrants in Canada. A number of studies report that immigrants and non-immigrants are similar with respect to having a regular medical provider, contact with a primary care physician, use of emergency departments, as well as unmet health care needs (3–5,17). Several other studies report greater difficulties in accessing immediate care among recent immigrants compared to non or long-term immigrants (6,9,17,36). There may also be differences in access and utilization between immigrants and non-immigrants across primary care models. For example, within fee-for-service practices, recent immigrants are reported to have poorer access and contact with primary care providers compared with long-term immigrants and non-immigrants (17). There is a discrepancy in research findings around access to care between studies quantitative and qualitative studies. While quantitative studies based on secondary analysis of administrative data and surveys show no differences in rate or experiences of access to primary care between immigrants are non-immigrants (5,10,38), qualitative studies highlight language barriers, lack of information on how to access services, economic barriers, geographic barriers and an absence of culturally safe and appropriate services for immigrants (8–10,79).

Differences in findings may be attributable to variation across studies in the conceptualization and operationalization of access to primary care. For example, barriers to access may emerge at various stages in the process of accessing care that have not been fully captured in previous work (5,6,80). The study deepens exploration of access by employing the framework proposed by Levesque et al. (12). This new framework integrates concepts of both potential and realized access, as well as both demand and supply side factors to examine experiences of navigating access and use of health care services. In addition to health care need, which has been examined in other models of access, the framework proposed by Levesque and colleagues identifies four stages in the process of health care access including perception of need, seeking, reaching and utilization (12). The first stage is the perception of need and desire for health care which relates to one's realization of need for care and the extent to which care becomes a priority among other needs. Demand side factors that may impact a patient's ability to perceive health care need include their level of health literacy, health beliefs, trust, and expectations (12). The second stage is the ability to seek, which pertains to one's intention to obtain care, autonomy, and capacity to find care along with the knowledge of available health care options (12). One's ability to seek desired care may be affected by factors including personal and social values, culture, and gender. The ability to reach is the third stage and relates to personal mobility and knowledge about health services that would enable one to physically reach service providers (12). This stage may be affected by demand side factors such as one's living environment, transport, and social support. Finally, the ability to pay for care relates to personal capacity to generate economic resources required to pay for realized health care services (12). Demand side factors that may impact one's ability to pay for utilized health care services may include income assets, social capital and whether or not they have social insurance.

Differences might plausibly exist between immigrant and non-immigrant groups at each of these stages. For example, relating to the first stage, health need, previous studies report major differences in self-reported health status between immigrants and non-immigrants. Immigrants are less likely to rank their health as very good or excellent and more likely to report unmet health care need (53,80). Differences have also been reported relating to difficulties in how to access or navigate health care services. Unlike non-immigrants, immigrants report difficulties in accessing and navigating required health care services due to long wait-times, language and socio-cultural barriers, lack of information

about how to access services, differential expectations, economic and geographical barriers (3,5,6,9,17). Past studies have demonstrated that immigrants have less contact with health care providers than non-immigrants due to barriers specific to how one gets to the place of care (6,81,82). Immigrants report difficulties securing a regular care provider due to transportation costs, immobility due to precarious working conditions and competing needs like settlement, employment and family responsibilities which may all be prioritized over getting timely access to required health care (68,70,74). Lastly, in relation to actual use of services, immigrants report lower use of existing care compared to non-immigrants, which is due to reported language and cultural barriers that hinder their ability to understand or follow through on treatments prescribed by practitioners (9,10). Cost-related barriers reported among recent immigrants who do not have health insurance may also hinder actual use of existing primary care services (23,83). The Levesque framework's more nuanced conceptualization of access may be useful in pinpointing where health care differences arise due to access issues, and to identify where more targeted system-level interventions are needed to address these differences.

Using the Levesque framework, I seek to compare patterns of access to primary care services between recent, long-term, and non-immigrant groups using cross-sectional data from the Canadian Community Health Survey. Specifically, I explore if patterns of health care seeking, reaching, and utilization differ by immigrant groups after accounting for covariates that are associated with immigration and may also shape the need for and access to care.

3.2. Methods

Data source

I use data from the 2015-2018 cycles of the Canadian Community Health Survey (CCHS) to compare patterns of primary care access between immigrants and non-immigrants. The Canadian Community Health Survey (CCHS) is an annual, cross sectional national survey conducted by Statistics Canada. It is a representative sample of 98% of the Canadian population age 12 years and older living in private dwellings, excluding those residing on reserves and other Aboriginal settlements, full-time members of the Canadian Forces, institutionalized populations, and those residing in remote regions. The description of the CCHS survey methodology and weightings can be found

elsewhere (13). The survey is instrumental in examining patterns of access to care between immigrants and non-immigrants as it is provides more recent, detailed and uniform information about health at the community level in every province and territory (13).

The CCHS sample is based on place of residence, and not Citizenship or immigration status. The study therefore includes people not born in Canada but who are permanent residents (25,26). The survey sample may also include temporary residents without permanent status, who are people visiting, studying or working in Canada, but who maintain their own nationality (26), though immigration status (permanent/temporary) is not collected within the survey and cannot be identified. I will use the term immigrants but recognize within this analysis the population described may include both permanent and temporary migrants.

I accessed Statistics Canada's Public Use Microdata Files through Simon Fraser University's library. I pooled annual 2015-2018 cycles into a single data set to maximize sample size for all population strata. Survey cycles prior to 2015 include different questions about primary care access and could not be included while the 2015-2018 cycles captured newer measures of access and experiences of navigating primary care services.

Sample selection

I included all respondents aged 18 and above. I excluded respondents missing data for immigrant status and/or valid responses needed to measure access to primary care. The final sample size included 222,949 participants. I applied survey weights provided by Statistics Canada to help account for lower response rates from some groups.

Response variables

The CCHS includes a number of variables related to primary care access, including important ones newly added within the 2015 survey cycle. I identified 12 variables that align with stages of access in the Levesque framework. While the CCHS questions were not designed to measure stages of the framework, grouping of the variables in this way helps structure analysis and reporting of results.

The first stage of the Levesque framework is "*Health care need.*" I include variables capturing need as adjustment variables in all analyses but comparing need among groups was not my primary objective. Adjustment variables are discussed below.

Following health care need, the second stage in the Levesque framework is "*Perception of needs and desire for care*." This stage could not be comprehensively mapped to CCHS variables, but I included the following variable, which provides some indication of whether people perceived need for a regular provider:

- "No regular health care provider because of no need": "Yes" if the respondent had no regular provider because they perceived no need and "No" if responder had a regular health care provider or had no regular provider for another reason.

The third stage "*Health care seeking*" describes the process of following through to seek desired care and the expression of the intent to obtain desired care. Within the Canadian health care system, it is up to patients to seek out a regular health care provider or place of care. Response variables in this stage therefore capture if and how people sought care. Two variables are related to having a regular health care provider and the remaining variables are related to having a usual place of care, and the type of usual place where care is sought:

- "Has a regular health care provider": this variable records participant responses to having a regular health provider, responses are binary including ("Yes" or "No").

- "No regular health care provider didn't try to find one": "Yes" if respondent has no regular health care provider because they did not try to find one and "No" if respondent has a regular health care provider or does not have a regular health care provider because of other reasons.

- "Usual place for immediate care for minor problem": Responses to having a usual place where participant sought for minor problem (e.g., same family physician office, community health centre, or walk-in clinic) are binary ("Yes" or "No")

- "Type of usual place for immediate care for minor problem": Responses are categorized into binary categories including "Walk-in-clinic or Emergency Department" and "Some other place other than walk-in or ED" which would include a family physician office or community health centre

- "Team-based care for usual place for immediate care": this variable reports the type of place where they usually access immediate care and responses are coded into binary categories; "Professional working as a team" or "Some other place not in teams"

"Health care reaching" is the fourth stage and denotes a participant's ability to physically reach service providers. Potential barriers here also include operating hours and appointment or scheduling structures. Measures of physical accessibility (location, transportation) were not available in the CCHS, but two variables may inform operating hours and appointment mechanisms.

- "Waiting time for Immediate care for minor problem": captures how long one had to wait to get access to immediate care and responses are categorized into binary categories including "Same/Next Day" and "More than same/next day."

- "Last visit to a hospital's emergency department for condition treatable by regular primary care provider": captures reaching as it suggests that the individual was not able to reach another source of care in the context of a specific visit. Responses for this variable are coded into binary "Yes" and "No."

The fifth and last stage is "Health care utilization." This reflects actual use and capacity to pay for services once people have physically reached the desired health care provider or service. I include three measures of service utilization:

- "Used a hospital emergency room in past 12 months": "Yes" if survey respondent had a consultation in past 12 months and "No" if survey participant had no consultation.

- "Consulted with a nurse in past 12 months": "Yes" if survey respondent had a consultation in past 12 months and "No" if survey participant had no consultation.

- "Consulted with a family doctor or general practitioner in past 12 months": "Yes" if survey respondent had a consultation in past 12 months and "No" if survey participant had no consultation.

When analyzing each of the above outcome variables, surveys where participants responded "Don't know" or where responses were missing were excluded from the sample (listwise deletion) for that analysis.

Explanatory variables

"Immigrant Group" was the main explanatory variable. This variable was constructed from a combination of two variables on the CCHS: status as either "immigrant or non-immigrant (born in Canada)" and "length of time since immigration". The variable categories include non-immigrants, recent immigrants (0-9 years in Canada), and long-term immigrants (10+ years in Canada). Within the Public Use Microdata File "length of time since immigration" was only available in these two categories (0-9 years and 10+ years).

Andersen's model of health utilization (48) was used to guide the choice of covariates from the CCHS that shape patterns of access to care and could also be correlated with immigration group. The Andersen's model is used to choose covariates as it more clearly articulates multi-level factors that affect health seeking behavior and health services utilization. Variables for this analysis are categorized into predisposing, enabling and need characteristics based on the Andersen model. All may be associated with immigration and also independently shape outcome variables.

Predisposing characteristics include biological sex (male and female) or gender, age of respondents (grouped into 18-34, 35-54, 55-74, 75+), and sexual orientation. The CCHS asks whether respondents are "male" or "female", but it is not clear if respondents would interpret this to reflect legal sex, sex assigned at birth, or gender. As such, I describe this variable as sex/gender. I use the language "male" and "female" in describing results to be consistent with language used on the survey which has two response categories:

"heterosexual" identifying; respondents who identify as having sexual attraction primarily to adults of the opposite sex and "gay/bisexual" identifying; respondents who identify as having sexual attraction to adults of the same sex or both sexes. Being a sexual or gender minority is a known push factor for migration and also can shape experiences within the health care setting (84,85) .

Immigrants are disproportionately racialized. As previous work shows that racialized immigrants often experience discrimination in health care interactions which subsequently influences subsequent health care seeking (86,87). The variable of "cultural/racial background" as described on the CCHS was used as a proxy for racialization. Categories under this variable include "White," identifying respondents who self-identify as Caucasian in race and white in colour and "non-White" as respondents who identify as a visible minority, including non-Caucasian in race and non-white in colour according to the Canadian Employment Equity Act. This binary variable was the only one available within the Public Use Microdata File that had to do with racialization.

Enabling factors include resource-based characteristics that play a role in peoples' ability to access or use health care. Total personal income was broken into three self-reported tiers includes lower income (below 39,000 dollars per year), middle income (40,000 to 79,000 dollars per year) and higher income (more than 80,000 dollars per year). Educational attainment was grouped into three categories: less than secondary school, secondary school and more than secondary school. Region of residence was included to account for differences in health system resources (small cell counts meant it was not possible to include individual provinces). Regions are as follow: Atlantic Canada (New-Brunswick, Newfoundland and Labrador, Prince Edward Island and Nova-Scotia), Quebec, Ontario, the Prairies (Manitoba, Alberta, and Saskatchewan), British Columbia, and the Territories (Northwest Territories, Nunavut, and Yukon). Marital status was recoded into a binary categorical variable with two responses "Married/common law" and "Single/Divorced". The variable is included as proxy for social capital and social support which is known to play an important role in if and how immigrants seek and use health care (88). Knowledge of official language is also categorized under enabling factors with two response categories; "English/French" or "Neither English nor French." Access to supplementary insurance may be a proxy for broader resources related to health which may affect one's ability to pay or use available care services. The variable "prescription medication for all or part cost coverage" is used to assess cost related barriers to care and

has two binary responses “Yes” if respondent had full/partial insurance coverage for prescription medication and “No” if respondent did not have coverage.

To account for differences in need for health services in addition to predisposing characteristics I examined “Perceived health status” with two binary responses “Poor/Fair” and “Good/Excellent/Very good.”

Statistical analysis

To describe differences across immigrant groups, I calculated unweighted frequencies and weighted percentages of all response and explanatory variables stratified by immigration group.

I used univariable logistic regression to examine the unadjusted association between immigration group and primary care measures and report unadjusted odds estimates and 95% confidence intervals. I use multivariable logistic regression models to estimate effects by immigrant group, adjusting for all covariates/explanatory variables as described above. Lastly, I examined the unadjusted and adjusted odds estimates by immigration group to determine if there are patterns across stages of the Levesque framework. I completed all statistical analysis using SAS 9.4 and data from Statistics Canada CCHS Public Use Microdata files.

3.3. Results

Characteristics of immigration groups

From the 2015-2018 CCHS cycles, 222,949 respondents with complete responses for immigration variables were pooled for inclusion in the analysis. Among the 222,949, 7194 (6.1% weighted percentage) were recent immigrants, 23,730 (16.9%) were long-term immigrants and 185,979 (77.1%) were non-immigrants.

Compared to recent immigrants and non-immigrants, long-term immigrants were older (47.3% age 55+) (Table 3.1). Sex/gender was similar across groups. The percentage of non-white respondents was higher among recent (81.0%) and long-term (60.3%) immigrants compared to 8.6% among non-immigrants. More than half of immigrants were married or in a common law relationship (66.5% recent and 67.5% long-term) compared to 55.0% of non-immigrants. A slightly higher percentage of non-immigrants identified as

gay/bisexual (3.3%) followed by recent immigrants (2.8%) and long-term immigrants (1.2%). Recent immigrants were more likely to reside in Ontario (41.5%) and the Prairies (24.1%) while long-term immigrants were more likely to reside in Ontario (55.1%) and British Columbia (17.9%). More immigrants (5.6% recent and 3.7% long-term vs 0.2% non-immigrant) reported proficiency in languages other than English or French. A slightly higher percentage of immigrants reported having no insurance for all or partial prescription medications (15.4% recent, 13.0% long-term vs 9.1% non-immigrants). More than half of recent immigrants (65.2%) had a personal income less than $39,000 per year compared to 54.5% long-term and 48.8% non-immigrants. Regarding level of education, 19.3 % of non-immigrants had less than secondary education compared to 14.0% of recent immigrants and 11.8% of long-term immigrants. Overall, a higher percentage of immigrants (recent and long-term immigrants) had a post-secondary education than non-immigrants. A higher percentage of immigrants (66.8%) rated their health as excellent or very good, compared to 53.9% and 62.4% for long-term immigrants and non-immigrants, respectively (Table 3.1).

Table 3.1. Descriptive characteristics (unweighted counts and weighted percentages) of analytic sample by immigation group, CCHS 2015-2018

Characteristic	**Recent Immigrant (0-9 years)**	**Long-term Immigrant (10+ years)**	**Non-immigrant**	***p- value (Chi²)***
	N = 7194 (3.3)	***N*=23730 (10.9)**	***N*=185979 (85.7)**	
***N* = 222949**	**n (%)**	**n (%)**	**n (%)**	
Age group (Years)				
18 to 34	2847 (42.3)	2373 (14.7)	37715 (28.0)	<.0001
35 to 54	3065 (41.3)	6907 (36.3)	48219 (29.3)	
55 to 74	409 (7.1)	9651 (36.1)	63850 (27.6)	
75+	65 (0.9)	4390 (11.2)	20333 (6.8)	
Missing	808 (8.5)	409 (1.7)	15862 (8.4)	
Sex/gender				
Male	3336 (47.9)	11039 (49.2)	86094 (49.6)	0.8010
Female	3858 (52.1)	12691 (50.8)	99885 (50.5)	
Racialization				
White	1362 (17.7)	12829 (38.5)	163899 (85.8)	<.0001
Non-White	5754 (81.0)	10585 (60.3)	8042 (8.6)	
Missing	78 (1.2)	316 (1.2)	14038 (5.6)	
Sexual orientation				
Heterosexual	6307 (88.3)	21506 (89.7)	165307 (88.7)	<.0001
Gay/Bisexual	179 (2.8)	418 (1.7)	5265 (3.3)	
Missing	708 (8.9)	1806 (8.6)	15407 (8.9)	
Region of residence				
Atlantic Canada (NB, Newfoundland, PEI, NS)	187 (1.2)	502 (0.8)	25186 (8.5)	<.0001
Quebec	1247 (18.7)	2708 (13.1)	41688 (26.1)	
Ontario	1884 (41.5)	10401 (55.1)	50716 (34.4)	
Prairies (Manitoba, Alberta, Saskatchewan)	2455 (24.1)	4299 (13.0)	38533 (18.7)	

Characteristic	**Recent Immigrant (0-9 years)**	**Long-term Immigrant (10+ years)**	**Non-immigrant**	***p- value (Chi²)***
	N = 7194 (3.3)	***N*=23730 (10.9)**	***N*=185979 (85.7)**	
***N* = 222949**	**n (%)**	**n (%)**	**n (%)**	
Territories	81 (0.1)	252 (0.1)	4900 (0.4)	
British Columbia	1340 (14.5)	5568 (17.9)	21401 (12.0)	
Marital status				
Married/common-law	4573 (66.5)	14005 (67.5)	91481 (55.0)	<.0001
Widowed/separated/divorced/single	2606 (33.4)	9615 (32.2)	94077 (44.8)	
Missing	15 (0.1)	110 (0.3)	421(0.2)	
Knowledge of official language				
English/French	6854 (94.3)	23051 (96.3)	185666 (99.8)	<.0001
Neither English nor French	331 (5.6)	655 (3.7)	183 (0.2)	
Missing	9 (0.1)	24 (0.1)	130 (0.1)	
Insurance-prescription medications-all/part				
Yes	2423 (31.9)	8740 (36.6)	77165 (41.3)	<.0001
No	1103 (15.4)	2945 (13.0)	17678 (9.1)	
Missing	3668 (52.7)	12045 (50.4)	91136 (49.7)	
Personal income				
Less than $39k	4357 (65.2)	12728 (54.5)	93163 (48.8)	<.0001
$40k to $79k	1311 (16.9)	6434 (26.0)	48728 (26.0)	
$80k+	540 (6.4)	3388 (13.7)	24166 (14.3)	
Missing	986 (11.6)	1180(5.8)	19922 (11.0)	
Education level				
Less than Secondary	1125 (14.0)	3260 (11.8)	43269 (19.3)	<.0001
Secondary	1080 (17.1)	4657 (20.0)	41292 (23.0)	
Post-Secondary	4912 (67.8)	15381 (66.1)	99168 (56.3)	
Missing	77 (1.1)	432 (2.1)	2250 (1.4)	

Characteristic	**Recent Immigrant (0-9 years)**	**Long-term Immigrant (10+ years)**	**Non-immigrant**	***p- value (Chi^2)***
	N = 7194 (3.3)	***N*=23730 (10.9)**	***N*=185979 (85.7)**	
***N* = 222949**	**n (%)**	**n (%)**	**n (%)**	
Perceived health status				
Excellent	2406 (32.7)	4853 (21.6)	39427 (24.2)	<.0001
Very Good	2509 (34.1)	7603 (32.3)	68587 (38.2)	
Good	1898 (27.6)	7514 (32.4)	52353 (26.6)	
Fair	293 (4.3)	2574 (9.5)	18456 (8.0)	
Poor	81 (1.1)	1121 (4.0)	6865 (2.8)	
Missing	7 (0.1)	65 (0.3)	291 (0.1)	

Source: Canadian Community Health Survey, 2015-2018, Statistics Canada

Patterns of Health Service Use by Levesque Stage

Perception of need and desire for care

Differences in participants who reported not having a regular provider because of no need to access one were pronounced, especially between recent immigrants and other groups. While 7.1% of recent immigrants reported not having a regular provider because of no need, only 4.1% of non-immigrants and 3.1% of long-term immigrants did (Table 3.2). Odds were significant in both unadjusted and adjusted analysis. Adjusted odds ratios (AOR) of not having a regular provider because of no need were significantly higher among recent immigrants compared to non-immigrants and lower among long-term immigrants compared to non-immigrants (AOR recent vs. non-immigrant: 1.83, 95% CI 1.57-2.14) AOR long-term immigrant vs. non-immigrant: 0.77, 95% CI: 0.67 - 0.86) (Table 3:3).

Seeking

As with perception of need, differences in where and how people sought care were observed among all groups. However, the largest differences were between recent immigrants and other groups. A lower percentage of recent immigrants reported having a regular provider (73.0%) and a usual place of care (82.5%), followed by non-immigrants (84.2%, 89.0%) and long-term immigrants (88.5%, 90.0%) respectively. In unadjusted and adjusted analysis, recent immigrants faced lower odds of having a regular provider in comparison with non-immigrants (AOR: 0.49, 95% CI: 0.45 - 0.54), whereas long-term immigrants had higher odds of having a regular provider (AOR:1.44, 95% CI:1.34 - 1.54). The odds of having a usual place of care were also significant in both adjusted and unadjusted analysis (AOR recent vs. non-immigrant: 0.61, 95% CI: 0.55 - 0.67) (Table 3.3, Figure 3.1 and 3.2)). A higher percentage of recent immigrants (9.2%) reported having no regular provider because they did not try to find one followed by non-immigrants (4.4%) and long-term immigrants (3.2%) (Table 3:2). The odds of having no regular provider because they did not try to find one were significant in both adjusted and unadjusted analysis. The Odds were higher among recent immigrants compared to non-immigrants (AOR: 2.26, 95% CI:1.97 - 2.59) and lower among long-term immigrants compared to non-immigrants (AOR: 0.71, 95% CI:0.61 - 0.81) (Table 3:3).

Among respondents with a usual place of care, a higher percentage of recent immigrants reported that the usual place was a walk-in clinic or emergency department (45.1%), followed by non-immigrants (35.4%), and long-term immigrants (30.5%) reporting the same. Odds were significant in both unadjusted and adjusted analysis (Table 3:3). In contrast, a lower percentage of long-term immigrants reported their usual place of care provides care in teams (21%), followed by non-immigrants (25.9%) and recent immigrants (27.6%). There was no significant difference in odds of team-based care between recent-immigrants and non-immigrants (Table 3:3).

Reaching

Groups had similar patterns on measures of reaching care, though measures did not capture transportation or geographic barriers. The odds of visiting an emergency room for conditions treatable at one's regular place of care were similar between recent and non-immigrants in both adjusted and unadjusted analysis (AOR: 0.98, 95% CI 0.71 - 1.31) In contrast, odds of visiting an emergency room were lower among long-term immigrants compared to non-immigrants (AOR: 0.70, 95% CI 0.60 - 0.83) (Table 3:3, Figure 3.1 and 3.2). Concerning waiting time for immediate care for a minor problem, a higher percentage of recent immigrants reported same/next day appointment (53.1%), followed by long-term immigrants (49.9%) and non-immigrants (40.2%) (Table 3:2). The odds were similar in both adjusted and unadjusted analysis (AOR recent vs non-immigrant: 1.67, 95% CI:1.52 - 1.84, AOR long-term vs. non-immigrant: 1.47, 95% CI: 1.39 - 1.54).

Utilization

On measures of health care utilization, a higher percentage of non-immigrants (17.7%), reported that they used a hospital emergency room in past 12 months compared to recent immigrants (14.6%) and long-term immigrants (14.3%) (Table 3:2). Odds were significant in both adjusted and unadjusted analysis. The odds of using a hospital emergency room were slightly lower for both recent and long-term immigrants compared to non-immigrants (AOR recent vs. non-immigrant: 0.80, 95% CI: 0.69 - 0.94), (AOR long-term vs. non-immigrant: 0.78, 95% CI: 0.71 - 0.87) (Table 3:3, Figure 3.1 and 3.2)). A lower percentage of recent immigrants reported consulting with a family doctor or general practitioner (60.8%), followed by non-immigrants (68.5%) with long-term immigrants reporting the highest percentage (72.6%). Odds were lower among recent immigrants

compared to non-immigrants in both adjusted and unadjusted odds (AOR: 0.72, 95% CI: 0.64 - 0.80). Odds were relatively higher among long-term immigrants when compared to non-immigrants in both adjusted and unadjusted analysis (AOR:1.23, 95% CI: 1.14 - 1.34). Conversely, a lower percentage of long-term immigrants (5.8%) compared to recent immigrants (7.1%) and non-immigrants (12.0%) reported to have consulted with a nurse in past 12 months. Odds were significantly lower for both recent and long-term immigrants compared to non-immigrants in both adjusted and unadjusted analysis (AOR: recent vs non-immigrant=0.58, 95% CI: 0.47 - 0.71), (AOR long-term vs. non-immigrant: 0.47, 95% CI: 0.41 - 0.53) (Table 3:3).

Table 3.2. Primary care access patterns of recent-immigrants, long-term immigrants and non-immigrants classified by Levesque stages (unweighted counted and weighted percentage), CCHS 2015-2018

Primary care use patterns	Recent Immigrant (0-9 years)	Long-term Immigrant (10+ years)	Non-immigrant	*p*- Value *(Chi²)*
***N*=222949**	**n (%)**	**n (%)**	**n (%)**	**n (%)**
Perception of need and desire for care				
No regular provider because of no need				
Yes	508 (7.1)	691 (3.1)	7355 (4.1)	<.0001
No	6616 (92.9)	22984 (96.9)	177719 (95.9)	
Health care seeking				
Has a regular provider				
Yes	5130 (73.0)	21043 (88.5)	157107 (84.2)	<.0001
No	2035 (27.0)	2661 (11.6)	28412 (15.8)	
No regular provider because didn't try to find one				
Yes	6434 (9.2)	23012 (3.2)	178047 (4.4)	<.0001
No	690 (90.8)	663 (96.9)	7027 (95.6)	
Has usual place for immediate care for minor problem				
Yes	5871 (82.5)	21453 (90.0)	165544 (89.0)	<.0001
No	1281 (17.5)	2200 (10.0)	19735 (11.0)	
Type of usual place for immediate care for minor problem				
Walk-in clinic/ER	2655 (45.1)	6208 (30.5)	55243 (35.4)	<.0001
Some other place	3199 (54.9)	15193 (69.5)	109814 (64.4)	
Team-based care for usual place for immediate care				
Professional working as a team	904 (27.6)	5010 (21.9)	32006 (25.9)	<.0192
Some other place not in teams	326 (72.5)	1534 (78.1)	10553 (74.1)	

Primary care use patterns	Recent Immigrant (0-9 years)	Long-term Immigrant (10+ years)	Non-immigrant	*p*- Value *(Chi²)*
***N*=222949**	**n (%)**	**n (%)**	**n (%)**	**n (%)**
Health Care Reaching				
Last visit to ER for condition treatable by regular primary care provider				
Yes	271 (60.9)	1401 (67.2)	12161 (59.4)	<.0001
No	198 (39.1)	752 (32.8)	9474 (40.6)	
Waiting time for Immediate care for minor problem				
Same/Next Day Appointment	2490 (53.1)	9341 (49.9)	55059 (40.2)	<.0001
More than Same/Next day	2278 (46.9)	10461 (50.1)	90932 (59.6)	
Health Care Utilization				
Used a hospital emergency room in past 12 months				
Yes	433 (14.6)	1624 (14.3)	15164 (17.7)	<.0001
No	2653 (85.4)	8823 (85.7)	64708 (82.3)	
Consulted with nurse in past 12 months				
Yes	256 (7.1)	875 (5.8)	12035 (12.0)	<.0001
No	3057(92.9)	10416 (94.2)	78972 (88.2)	
Consulted with a family doctor or general practitioner past 12 months				
Yes	1998 (60.8)	8503 (72.6)	63807 (68.5)	<.0001
No	1311 (39.2)	2783 (27.4)	27148 (31.5)	

Source: Canadian Community Health Survey, 2015-2018, Statistics Canada.

Table 3.3. Unadjusted and adjusted odds ratios (weighted) for chosen primary care outcomes of recent (0-9 year in Canada) and long-term immigrants (10+ years in Canada) compared to non-immigrants (born in Canada), CCHS 2015-2018

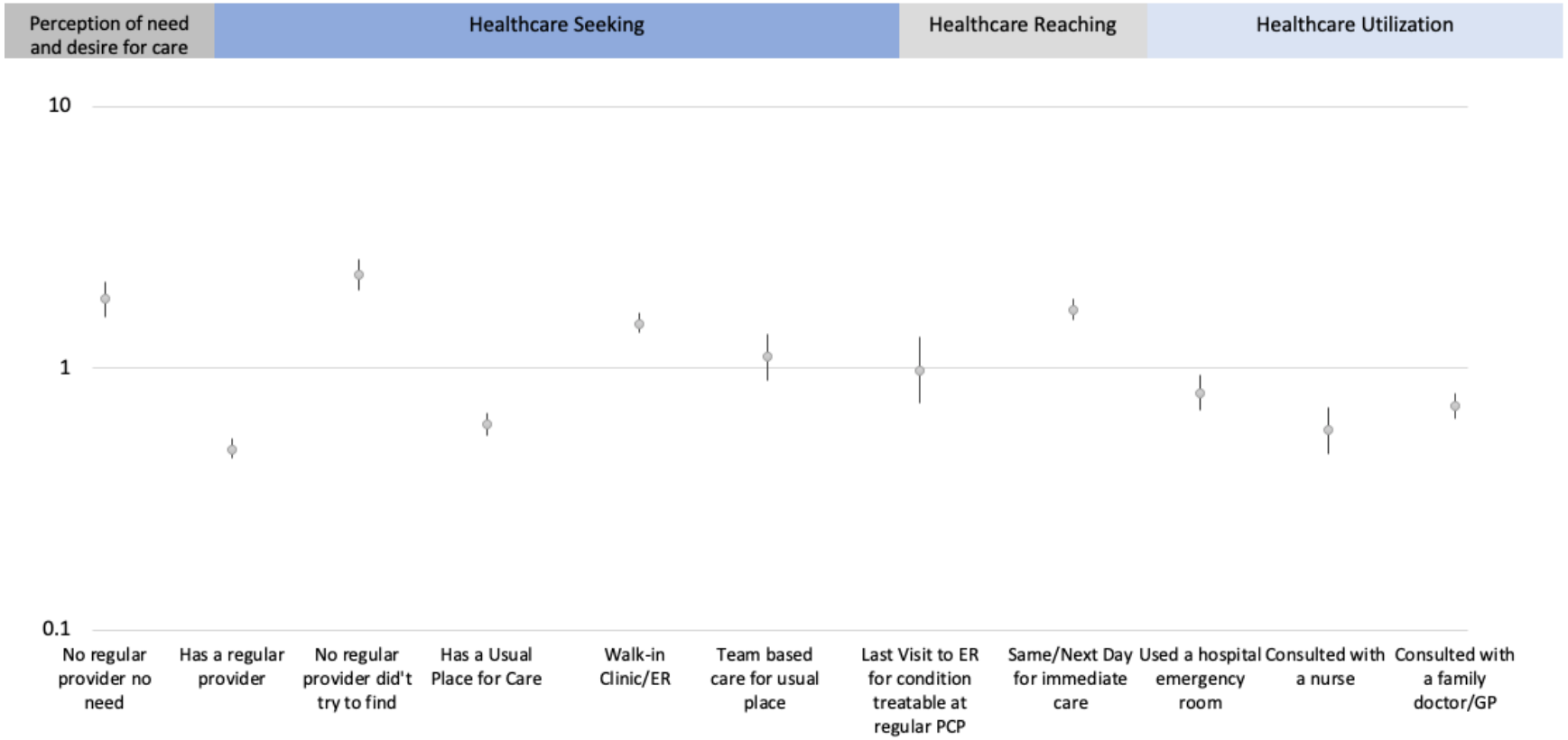
Characteristic	Unadjusted OR	Adjusted OR
	OR (95% CI)	AOR (95% CI)
Perception of need and desire for care		
No regular provider no need (Yes vs No) (N=215,873)		
Recent immigrant vs Non-immigrant	1.79 (1.53 - 2.09)	1.83 (1.57 - 2.14)
Long-term immigrant vs Non-immigrant	0.76 (0.67 - 0.86)	0.77 (0.67 - 0.86)
Health care seeking		
Has a regular provider (No vs Yes) (N=216,388)		
Recent immigrant vs Non-immigrant	0.51 (0.47 - 0.55)	0.49 (0.45 - 0.54)
Long-term immigrants vs Non-immigrant	1.43 (1.34 - 1.54)	1.44 (1.34 - 1.54)
No regular provider because didn't try to find one (Yes vs No) (N=215,873)		
Recent immigrant vs Non-immigrant	2.20 (1.92 - 2.51)	2.26 (1.97 - 2.59)
Long-term immigrant vs Non-immigrant	0.70 (0.61 - 0.81)	0.71 (0.61 - 0.81)
Has a usual place for Immediate care for minor problem (Yes vs No) (N=216,084)		
Recent immigrant vs Non-immigrant	0.61 (0.56 - 0.68)	0.61 (0.55 - 0.67)
Long-term immigrant vs Non-immigrant	1.17 (1.09 - 1.27)	1.08 (1.08 - 1.27)
Type of usual place for immediate care for minor problem (Walk-in Clinic/ER vs Some other place) N=192,312		
Recent immigrant vs Non-immigrant	1.49 (1.37 - 1.62)	1.48 (1.36 - 1.62)
Long-term immigrant vs Non-immigrant	0.80 (0.75 - 0.84)	0.79 (0.75 - 0.83)
Team-based care for usual place for immediate care (In teams vs Not in teams) N=50,333		
Recent immigrant vs Non-immigrant	1.09 (0.89 - 1.33)	1.10 (0.89 - 1.35)
Long-term immigrant vs Non-immigrant	0.80 (0.72 - 0.89)	0.80 (0.72 - 0.89)

Characteristic	Unadjusted OR	Adjusted OR
	OR (95% CI)	AOR (95% CI)
Health Care Reaching		
Last visit to ER for condition treatable at regular primary care provider (No vs Yes) N=24,257		
Recent immigrant. Vs Non-immigrant	0.93 (0.70 - 1.24)	0.98 (0.73 - 1.32)
Long-term immigrant vs Non-immigrant	0.71 (0.60 - 0.84)	0.70 (0.60 - 0.83)
Same/Next day for immediate care for minor problem (Same/Next Day vs More than same or next day) N=170,561		
Recent immigrant vs Non-immigrant	1.67 (1.53 - 1.83)	1.67 (1.52 - 1.84)
Long-term immigrant vs Non-immigrant	1.47 (1.40 - 1.55)	1.47 (1.39 - 1.54)
Health Care Utilization		
Used a hospital emergency room (Yes vs No) N=93,405		
Recent immigrant vs Non-immigrant	0.80 (0.69 - 0.93)	0.80 (0.69 - 0.94)
Long-term immigrant vs Non-immigrant	0.77 (0.70 - 0.86)	0.78 (0.71 - 0.87)
Consulted with nurse (Yes vs No) N=105,611		
Recent immigrant vs Non-immigrant	0.57 (0.46 - 0.70)	0.58 (0.47 - 0.71)
Long-term immigrant vs Non-immigrant	0.46 (0.40 - 0.52)	0.47 (0.41 - 0.53)
Consulted with a family doctor or general practitioner (Yes vs No) N=105,550		
Recent immigrant vs Non-immigrant	0.72 (0.65 - 0.81)	0.72 (0.64 - 0.80)
Long-term immigrant vs Non-immigrant	1.23 (1.14 - 1.34)	1.23 (1.14 - 1.34)

Source: Canadian Community Health Survey, Statistics Canada

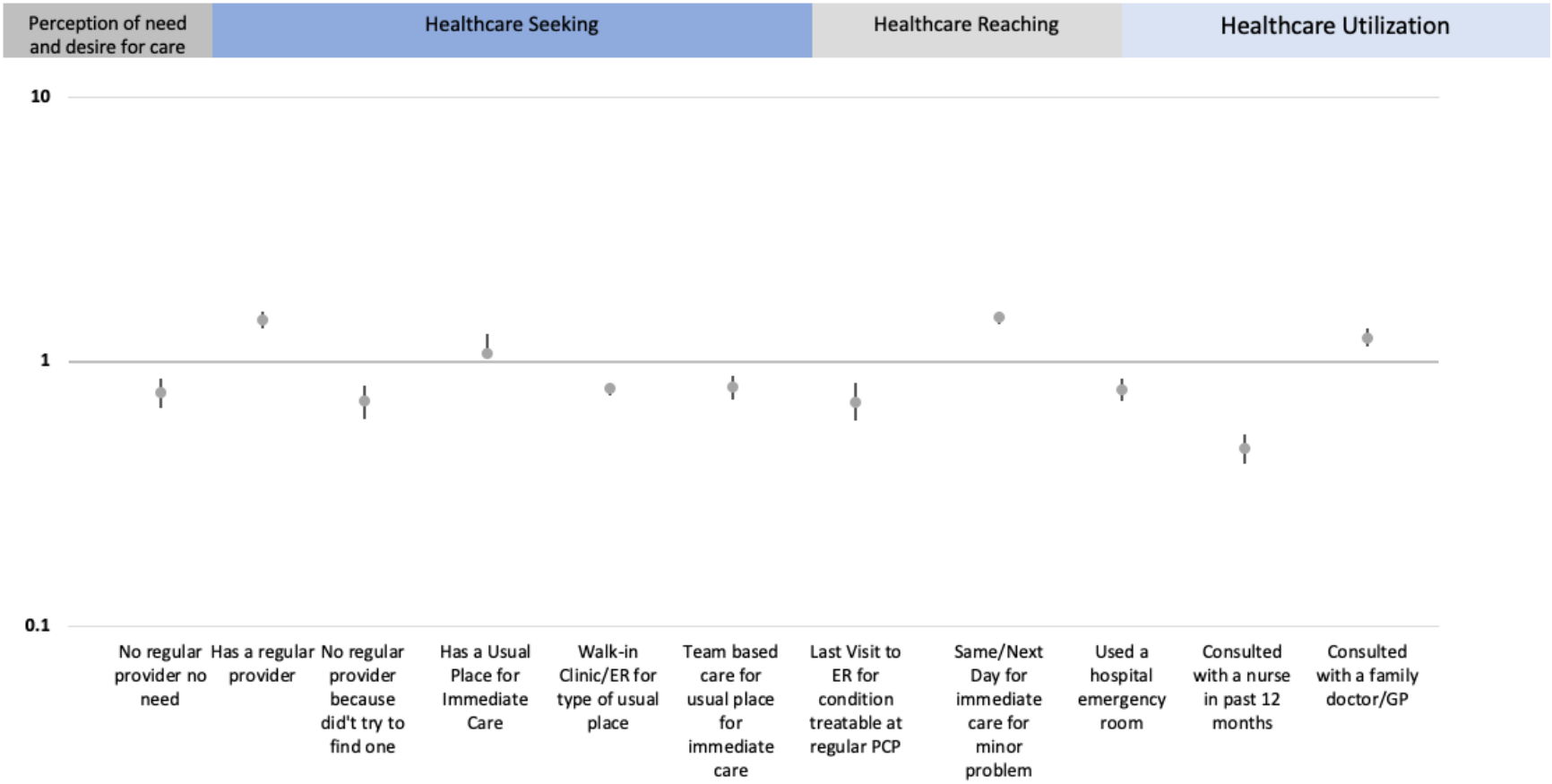
Note: Covariates in multivariable models used to generate adjusted estimates include age, racialization, sexual orientation, region of residence, marital status, knowledge of official language, partial/full insurance for prescription medications, personal income, education and perceived health status

Figure 3.1. Log-scale graph showing adjusted odds estimates and 95% CI of recent immigrants compared to non-im migrants



Note: Covariates in multivariable models used to generate adjusted estimates include age, racialization, sexual orientation, region of residence, marital status, knowledge of official language, partial/full insurance for prescription medications, personal income, education, and perceived health status

Figure 3.2. Log-scale graph showing adjusted odds estimates and 95% CI of long-term immigrants compared to non- im migrants



Note: Covariates in multivariable models used to generate adjusted estimates include age, racialization, sexual orientation, region of residence, marital status, knowledge of official language, partial/full insurance for prescription medications, personal income, education, and perceived health status

3.4. Discussion and interpretation of results

This analysis aimed to explore how patterns of primary care access compare among recent immigrants, long-term immigrants, and non-immigrant groups in Canada. I observed persistent differences between immigrants and non-immigrants in access to primary care even after controlling for possible explanatory factors such as age, gender, education, and income. Findings also highlight that recent immigrants substantially differ from both long-term immigrants and non-immigrants with respect to how they report need for a regular provider, along with how and where they seek primary care. Results reaffirm prior research (6,8,9,11) that recency of immigration is associated with difficulty finding regular and immediate care and increased unmet need. Long-term immigrants and non-immigrants show similar patterns in variables grouped under perception of need and seeking health care but begin to diverge at the reaching and utilization stages. This is consistent with prior research (59,89), which shows that increased length of stay provides an advantage with navigating the Canadian health system. However, differences in health care utilization are still observed across all three groups.

To some extent, observed differences between recent and non-immigrants in their perception of need and desire for care may be shaped by recent immigrants' expectations and previous experiences of home country health care systems (9,38,90). Some recent immigrants may come from countries without stable and regular health care providers which may impact expectations and perceived need after settlement in Canada (59). Such past experiences shape immigrants' expectations; that needs will not be met based on previous experiences hence shaping how or whether need is developed (8). Differences in conceptions of health and healing as evidenced in previous research may also account for the observed differing patterns in perception of need and desire for care between immigrants and non-immigrants (38). Another plausible explanation consistent with previous research is information asymmetry within immigrant communities. Recent immigrants are more likely to settle within similar cultural and ethnic communities that have shared expectations and experiences, which become the primary source of information about health care services and health care navigation (91).

While differences may reflect individual expectations and experiences, findings of this study reinforce the need to address supply side factors relating to the design of the health care system, including approachability, accessibility, availability and

accommodation, affordability and appropriateness of services (12). Supply side factors pertaining to how approachable a service is, including outreach programs in recent immigrant communities, transparency, and information sharing, may significantly shape development of need and desire to seek care. Culturally appropriate or immigrant tailored services, including members of service delivery teams from the same ethnocultural or ethnolinguistic group. These types of tailored service delivery teams can reflect the diverse needs of immigrants and have been shown to determine and influence how and whether immigrants use and access formal primary care services as well as the choice of health care services used (92).

Findings point to the particular importance of initial approachability and acceptability of services in shaping the perception of need and desire for care among recent immigrants. These initial supply side factors of how approachable or acceptable a service appear to significantly impact subsequent stages of access including seeking, reaching and utilization. This is reflected in the way recent immigrants are less likely to report having a regular provider, and more likely to report not having a regular provider because they did not try to find one and are less likely to have a usual place for immediate care for a minor problem (Table 3:3). This observation reinforces the known social-cultural barriers to care that have been reported in numerous qualitative studies. The lack of culturally competent and linguistically accessible care has numerously been shown to hinder access to care (7,8,10,93) and may be shaping whether and how recent immigrants seek care.

Findings suggest that recent immigrants use walk-in clinics more than other groups, which is consistent with prior research, and has implications for service planning. While the use of hospital emergency rooms is similar between recent immigrants and non-immigrants, there are significant differences in the use of walk-in clinics or emergency department as a regular place of care. Previous research has found utilization of walk-in clinics to reduce with increased length of stay in Canada as people find more regular sources of care such as family doctors (92). Plausible explanations for the use of walk-in clinics among recent immigrants may include convenience and flexibility of hours of operation. This flexibility and convenience is important because recent immigrants may be working in precarious or less flexible jobs that may not allow for time off to see a regular health care provider or to schedule appointments within regular working hours. The use of walk-in clinics may also be linked to the conceptualization of need and use of health

care services consistent with place of origin. In other words, the care provided in walk-in clinics is perceived and experienced as more approachable compared to other sources of primary care. Recent immigrants had higher odds of reporting same/next day care compared to non-immigrants, which may be linked to the use of walk-in clinics that do not require appointment or scheduling. These observations highlight the importance of ensuring walk-in clinics deliver quality primary care. It is also essential that these clinics are prepared to also deliver screening, preventative care, and to follow patients over time when needed. These observations also suggest the need to identify features of walk-in clinics that contribute to their approachability and acceptability and adopt them in other primary care models.

Finally, similar patterns in perception of need and desire for care, seeking, and reaching observed between long-term immigrants and non-immigrants indicate that there may be similarities in health seeking behavior and similar access to information regarding health care navigation. Such patterns likely reflect the adjustment to the Canadian health care system with increased length of stay among long-terms immigrants as immigrants become familiar with the system. However, this pattern also raises concern regarding delayed response by health care providers to the needs of recent immigrant in their initial settlement. Findings reinforce that interventions at initial settlement of recent immigrants including culturally responsive and approachable primary health care services are needed to improve access to care among immigrants.

3.5. Limitations of study

While survey sampling is intended to capture respondents, who are representative of the Canadian population with respect to measured variables, people willing to respond to a health survey may differ from non-respondents in ways that are relevant to health care, leading to non-response bias (94–96). This is particularly relevant in a study of immigration and health because populations that may not respond to the surveys may be most affected by barriers in accessing health care. As such, the study may be limited to those who may have relatively less demands on time and who may also most likely have fewer barriers in accessing health care. Additionally, this study uses self-reported measures (within the already selected population of respondents). Respondents may choose not to answer questions or may report answers that are perceived to be socially desirable, and this could plausibly vary by immigration group (97). Survey weights

provided by statistics Canada do not account for nonresponse bias or population specific differences in responses (98). Differences in access across immigration groups may therefore be underestimated.

The CCHS asks if respondents are “male” or “female.” It is not clear if this measure reflects assigned sex at birth or legal sex and gender is not collected, and substantial caution is needed in interpretation of results. In labelling this sex/gender this misclassifies gender identity, imposes cisnormativity, and can contribute to the erasure of trans and nonbinary experience.

Finally, CCHS Survey variables used were not developed to capture elements of the Levesque framework used to guide this research. Variables for each stage along the framework were assigned based on previous health services research. As such, it is possible that variables could have been grouped under different stages. However, I believe the Levesque framework (12) is useful for more carefully conceptualizing and examining access and health services use in the context of immigration. Future research could seek to measure stages of access more directly,

3.6. Conclusion

There are significant differences in measures of access to primary care among immigration groups for all variables examined, though patterns differ by groups. Recent immigrants differed from long-term immigrants and non-immigrants in relation to perception of need and desire for care, seeking and utilization. Long-term and non-immigrants differed with respect to utilization of primary care services. Observed differences between immigration groups may reflect gaps in service organization, planning, and delivery, particularly pertaining to accessibility, approachability, and availability of primary care services. Results from study are relevant to informing primary care policy and planning to ensure responsiveness of health care system to the diverse needs of immigrants especially newcomers. Improvements to primary care services that respond to diverse needs including culturally appropriate and safe services, and the inclusion of language interpreters and outreach within migrant communities are needed to reduce disparities in access to primary care among immigrant communities in Canada.

Chapter 4.

Sex/gender, immigration, and patterns of access to primary care in Canada

4.1. Introduction

Background

Primary care is intended to be the first and main point of access to health care in Canada. Primary care provides support for continuity and coordination of care when specialist or hospital services are required (14). Barriers to primary care access faced by immigrants to Canada may include language, cost and insurance related barriers, knowledge of the health system and social cultural barriers (7,21,77). Patterns of access to primary care may also be further shaped by sex and gender (44,60,99,100). There are existing studies that examine gender or sex differences in patterns of access and use of primary care services in Canada, though many are limited as they do not distinguish between sex and gender. In describing the literature, I use the male/female or men/women as is written in the literature cited, though this does not consistently correspond to analysis of sex or gender. Overall, women are more likely to use health care services than men in Canada (46,99,101). While women may be more frequent users of health care services, their experience rates poorly compared to that of men (47). For example, average wait times for overall diagnostic testing and blood tests are significantly lower for men than for women (47,75). Women were also reported to have visited their primary care provider for both physical and mental health concerns more than men (46).

Research on sex and gender in the context of immigration and primary care access is still limited and inconclusive (47,75,76,99). A study by Degelman and Herman using cross sectional data from the 2011-2012 Canadian Community Health Survey found that compared to male recent immigrants, female recent immigrants are more likely to use primary care services (11). The percentage of people who have a regular doctor were overall significantly higher among all females than males in the study. The study particularly found that 68% of female recent immigrants reported having a regular medical doctor compared to only 55% of male recent immigrants and adjusted odds of having a regular doctor were still higher among female recent-immigrants than male recent

immigrants (11). Patterns of primary care use observed among recent immigrant men are reported to be similar to the patterns among non-migrant men (11). While women are more likely to use primary care services including a regular care provider for minor health problem more than men, they are also more likely to experience difficulties accessing urgent and routine care for minor problems (6). Within existing studies, immigrant women are more likely to report barriers in accessing immediate and routine care than non-immigrant women (3,11,47,99). Several studies explore experiences of accessing and using health care services among female immigrants (79,93,102,103) and some studies discussed above compare patterns of access between male and female immigrants. Nevertheless, few studies explicitly focus on or sufficiently explore the experiences immigrant men (21,36, 51,52). In their meta-analysis of barriers to care among immigrant populations in Canada, Ahmed, Shommu and colleagues show that out of all 27 studies, fourteen studies focused on barriers faced by immigrant women alone and the remaining 13 included both men and women (10). None focused exclusively on men.

Both sex and gender may shape need for health care. Sex is a multidimensional biological construct that encompasses anatomy, physiology, genes and hormones, which together affect how one is labelled and treated in the world (43). Biological and physiological differences across the sex continuum may cause variation in the nature and seriousness of health issues (45,48). For example, due to reproductive differences, female people may be more predisposed to reproductive and childbirth-related health issues and more likely to need and use health care services than males. However, beyond the influence of reproductive differences on health, other biological differences have impacts on need for health services between sexes. For example, genetic, hormonal and metabolic differences influence the susceptibility to certain diseases including prostrate, cervical and breast cancer and susceptibility to heart diseases (44). In this study, I define gender as the socially constructed roles that affect how people perceive themselves, their expressions, behavior, and how people act and interact, and may shape both need and patterns of interaction with health systems (45). Social determinants such as level of education, age, ethnicity type of occupation and economic status combined with gender may lead to differences in health status and resultant health care needs, as well as differential resources to access care (55–57). Gender may also shape one's conceptualization of health and resultant health seeking practices (54,99).

I aim to examine how sex or gender and immigration interact to shape patterns of access to primary care in Canada. My conceptualization of access is informed by a framework by Levesque et al., which describes access as a process from identifying and perceiving needs and desire for care, through to how care is sought, reached, and ultimately used.

4.2. Methods

Data source

I used Canadian Community Health Survey (CCHS) accessed through Statistics Canada Public Use Microdata files. Within the survey, I used 2015-2018 cycles, which I pooled into single data set to maximize sample size for all population strata. The Canadian Community Health Survey (CCHS) is an annual, cross sectional national survey conducted by Statistics Canada. It is a representative sample of 98% of the Canadian population age 12 years and older living in private dwellings, excluding those residing on reserves and other Aboriginal settlements, full-time members of the Canadian Forces, institutionalized populations, and those residing in remote region(13). The sampling frame is based on place of residence and may therefore include people residing in Canada temporarily as well as Canadian citizens and permanent residents. The survey is administered through computer assisted interviewing where the order of questions is programmed based on previous responses. Statistics Canada hires interviewers with wide range of language competencies where necessary. The description of the CCHS survey methodology can be found elsewhere (13).

Sample selection

The sample included respondents age 18 and older. I excluded respondents missing data for immigrant status, sex and measures of primary health care use and access.

Explanatory variables

The survey asks “is [respondent name] male or female.” The variable is labeled sex, but it is possible respondents may interpret this to mean sex assigned at birth, legal sex, or gender. As described previously, need for health care may be associated with physiological differences related to sex, such as chromosomes, gene expression,

reproductive anatomy and hormone levels (45), while socially constructed gender roles may affect both need for care and how people interact with health systems (45,46,99,101). It is not possible to distinguish between these processes with the question used in the CCHS. As such I use “sex/gender” to describe the explanatory variable for this study, with the categories “male” and "female” used to describe study respondents, as is reflected in question wording. The cisnormative combination of sex and gender within this variable is a limitation of this analysis.

“Immigrant group” was the other main explanatory variable. Respondents were grouped into recent immigrants (immigrants who have lived in Canada for 0-9 years), long-term immigrants (immigrants who have lived in Canada for more than 10 years), and “non-immigrant” (people born in Canadian).

I used Andersen’s model of health utilization (48) to guide the identification and choice of covariates that are associated with sex/gender and migration and that may also shape patterns of access to care from the CCHS. I included age of respondents (grouped into 18-25, 26-35,36-55,56-80, and 81+). The CCHS includes a variable described as cultural/racial background, including two binary categories: “White” and “non-White”. I included this as a proxy for racialization within the Canadian health system. Respondents were also asked about sexual orientation and to choose between two response categories: heterosexual or gay/bisexual. Self-reported sexual orientation between immigrant and non-immigrants may shape patterns of access to care given the varying degrees to which one may feel comfortable seeking care in a dominantly heterosexual society (104,105).

Other explanatory variables include resource-based characteristics that play a role in one’s ability to access or use health care. I grouped total personal income into three self-reported responses including lower income (below 39,000 Canadian dollars a year), middle income (39,000 to 79,000 dollars per year) and higher income (more than 79,000 dollars per year). I grouped level of education into three categories (less than secondary school, secondary school and more than secondary school). I included region of residence to account for differences in health systems resources and models. I used regions to combine provinces with small cell counts. Categories under this variable include Atlantic Canada, (New-Brunswick, Newfoundland and Labrador, Prince Edward Island and Nova-Scotia), Quebec, Ontario, the Prairies (Manitoba, Alberta, and Saskatchewan), British

Columbia, and the Territories (Northwest Territories, Nunavut, and Yukon). I also included marital status which I re-coded into a binary categorical variable with two responses "Married/common law" and "Single/Divorced". I categorized knowledge of official language under enabling factors with two response categories: "English/French" or "neither English nor French." Access to insurance for all or partial cost coverage for prescription medication is included as a measure of resources for health services and had two binary responses "Yes" or "No." To account for differences in health needs for health care between populations, I included "perceived health" with four categories "Excellent", "Very-good", "Good", "Fair" and "Poor".

Response variables

I selected five response variables measuring both whether and how people seek and access primary care services, and that were available from the Canadian Community Health Survey between 2015 and 2018. I use the Levesque framework (12) to consider stages of access and group variables in order of the framework, moving from perception of need and desire for care, health care seeking, reaching and utilization.

Two variables describe where and how respondents seek primary health care. The first, "Usual place for immediate care for minor problem" reports whether or not a participant had a usual place for immediate care for minor problems, and responses are coded into binary categories of "Yes" or "No." "Type of usual place for immediate care for minor problem" includes two categories of responses. Respondents either chose "walk-in-clinic or emergency department" or "Some other place other than walk-in clinic or ED". One related variable reflects perception of need and desire for care, categorizing reasons for not having a regular health care provider. It distinguishes between people who indicated that they have no regular health care provider because of no need (where "yes" means respondent had no provider and no need) versus ("no"), respondents that had a regular health care provider or did not have a regular health care provider but because of a reason other than having no need.

"Waiting time for immediate care for minor problem" was selected to capture how long respondents reported waiting before reaching needed care. Responses were categorized into binary categories of "Same/next day" and "More than same/next day."

The last variable measures use of services from a primary care physician. Responses to “Consulted with a Family Doctor or General Practitioner in the past 12 months” are coded into categorical variables “Yes,” if survey participant had a consultation in past 12 months, and “No,” if survey participant had no consultation. For all the above variables, survey responses including “Valid Skip” and “Don’t know” or “Missed” were excluded.

Statistical analysis

I calculated unweighted frequencies and weighted percentages of all responses and explanatory variables by immigration and sex/gender as shown in tables 4.1 and 4.2. I used survey weights in the percentages to account for lower or higher response rate from some groups more than others to provide for a representative sample population.

I used logistic regression to examine the extent of the unadjusted association between immigration groups stratified by sex/gender and measures of whether and how people seek and access primary care. Odds estimates for all immigration groups by sex/gender are compared to Female non-immigrant category in table 4.3 and Figure 4.1. I used multivariable logistic regression models to calculate adjusted associations including immigration and sex/gender groups and all other covariates. I report adjusted odds ratios and 95% confidence intervals. Finally, I use logistic regression joint tests to calculate significance of interaction effects of immigration and sex/gender with associated p-values results shown in table 4.3 and figure 4.1. All statistical analysis was completed using SAS 9.4.

4.3. Results

Characteristics of immigration groups by sex/gender

Both male and female recent immigrants were younger than long-term and non-immigrant respondents, with a higher percentage of respondents below 34 years (40.6 % among male recent immigrants, 43.8% among female recent immigrants) (Table 4.1). Higher percentages immigrants identified as being non-White than non-immigrants (Table 4.1). A slightly higher percentage of female non-immigrants and male recent immigrants identified as being gay or bisexual than other groups (3.6% and 3.4% respectively). A higher percentage of male long-term immigrants (72.8%) and both male and female recent

immigrants (64.8% and 68.0% respectively) reported being married or in common law relationships than other immigration and sex/gender groups. A lower percentage of male and female recent immigrants (96% and 92.6% respectively) and female long-term immigrants (95.6%) speak English/French compared to other groups (Table 4.1). Percentage of respondents with insurance for prescription medication was lowest among female recent immigrants (30.9%) followed by male recent immigrants (32.9%), male and female long-term immigrants (36.6% and 36.7% respectively) (Table 3.1).

Across all immigration groups there was a higher percentage of female respondents in the lower income bracket ($39,0000 per year) than males. Male recent immigrants were underrepresented in the middle ($40,000-79,000 per year) and high income (more than $80,000 per year) categories compared to male long-term and non-immigrants. A higher percentage of male and female recent immigrants followed by male and female long-term immigrants reported post-secondary education than non-immigrants (Table 4.1). A higher percentage of male and female recent immigrants (35.5% and 30.1% respectively) reported excellent to very good perceived health status compared to long-term and non-immigrants.

Table 4.1. Descriptive characteristics (unweighted counts and weighted percentages) of respondents stratified by immigration group and sex/gender, CCHS 2015-2018

Characteristic	Male recent immigrant	Male long-term immigrant	Male non-immigrant	Female recent immigrant	Female long-term immigrant	Female non-immigrant	p-Values (χ^2)
	N=3336 (2.9)	*N=11039 (8.3)*	*N=86094 (38.2)*	*N*=3858 (3.2)	*N*=12691 (8.6)	*N*=99885 (38.9)	
	n (%)	*n (%)*	*n (%)*	n (%)	n (%)	n (%)	
Age group (years)							<.0001
18 to 34	1220 (40.6)	1152 (15.5)	17742 (28.6)	1627 (43.8)	1221 (14.0)	19973(27.3)	
35 to 54	1466 (43.0)	3107 (35.4)	22455 (29.7)	1599 (39.7)	3800 (37.1)	25764 (28.9)	
55 to 74	176 (5.9)	4669 (36.8)	29755 (27.2)	233 (8.3)	4982 (35.5)	34095 (28.0)	
75+	32 (1.0)	1896 (10.5)	8010 (5.9)	33(0.8)	2494 (11.8)	12323 (7.6)	
Missing	442 (9.5)	215 (1.8)	8132 (8.7)	366 (7.5)	194 (1.6)	7730 (8.2)	
Racialization							
White	685 (19.8)	5881 (37.6)	75628 (85.5)	677 (15.8)	6948 (39.4)	88271 (86.0)	<.0001
Non-White	2610 (78.6)	5024 (61.2)	3960 (8.9)	3144 (83.3)	5561 (59.3)	4082 (8.4)	
Missing	41 (1.5)	134 (1.2)	6506 (5.6)	37 (1.0)	182 (1.2)	7532 (5.6)	
Sexual orientation							
Heterosexual	2879(87.5)	9980 (90.4)	75777 (88.4)	3428 (89.2)	11526 (89.0)	89530 (88.9)	<.0001
Gay/Bisexual	107 (3.4)	215 (1.9)	2210 (2.9)	72 (2.2)	203 (1.5)	3055 (3.6)	
Missing	350 (9.1)	844 (7.7)	8107 (8.7)	358 (8.7)	962 (9.5)	7300 (7.5)	
Province of residence							
The Maritimes (NB, Newfoundland, PEI, NS)	93 (1.2)	231 (0.8)	11451 (8.2)	94 (1.1)	271 (0.8)	14049 (8.5)	<.0001
Quebec	597 (19.4)	1330 (13.5)	19732 (25.6)	650 (18.0)	1378 (12.7)	22379 (25.8)	
Ontario	862 (38.6)	4817 (54.7)	23748 (34.5)	1022 (44.3)	5584 (55.4)	28994 (34.8)	

Characteristic	Male recent immigrant	Male long-term immigrant	Male non-immigrant	Female recent immigrant	Female long-term immigrant	Female non-immigrant	p-Values (χ^2)
	N=3336 (2.9)	*N=11039 (8.3)*	*N=86094 (38.2)*	*N*=3858 (3.2)	*N*=12691 (8.6)	*N*=99885 (38.9)	
	n (%)	*n (%)*	*n (%)*	n (%)	n (%)	n (%)	
The Prairies (Manitoba, Alberta, Saskatchewan)	603 (15.6)	2564 (17.7)	10274 (12.2)	737 (13.4)	3004 (18.2)	11834 (12.2)	
The Territories	28 (0.1)	125 (0.1)	2430 (0.3)	53 (0.1)	127 (0.1)	2553 (0.4)	<.0001
British Columbia	1153 (25.2)	1972 (13.2)	18459 (19.0)	1302 (23.1)	2327 (12.9)	20976 (18.4)	
Marital status							
Married/common-law	2027 (64.8)	7320 (72.8)	44324 (56.6)	2546 (68.0)	6685 (62.3)	47157 (53.5)	<.0001
Widowed/Separated/divorced/Single	1305 (35.2)	3672 (26.9)	41587 (43.2)	1301 (31.8)	5943 (37.3)	52490 (46.3)	
Missing	4 (0.1)	47 (0.3)	183 (0.2)	11 (0.2)	63 (0.3)	238 (0.2)	
Knowledge of official language (English/French)							
English/French	3320 (96.2)	10822 (97.4)	85934 (99.7)	3634 (92.6)	12229 (95.2)	99732 (99.8)	<.0001
Neither English nor French	110 (3.6)	210 (2.6)	88 (0.2)	221 (7.4)	445 (4.7)	95 (0.1)	
Missing	6 (0.2)	7 (0.0)	72 (0.1)	3 (0.1)	17 (0.2)	58 (0.1)	
Has Insurance-prescription medications-all/partial							
Yes	1141 (32.9)	4087 (36.6)	35318 (40.8)	1282 (30.9)	4653 (36.7)	41847 (41.7)	<.0001
No	496 (15.6)	1382 (12.9)	8470 (9.4)	607 (15.2)	1563 (13.0)	9208 (8.8)	
Missing	1699 (51.5)	5570 (50.5)	42306 (49.9)	1969 (53.9)	6475 (50.3)	48830 (49.5)	
Personal income							
Less than $39k	1662 (55.4)	5042 (48.2)	35493 (40.8)	2695 (74.1)	7686 (60.7)	57670 (56.6)	<.0001
$40k to $79k	773 (22.5)	3361 (28.7)	25433 (28.9)	538 (11.7)	3073 (23.3)	23295 (23.1)	
$80k+	388 (9.9)	2099 (17.9)	15292 (19.3)	152 (3.2)	1289 (9.7)	8874 (9.4)	
Missing	513 (12.2)	537 (5.2)	9876 (11.0)	473 (11.0)	643 (6.4)	10046 (10.8)	

Characteristic	Male recent immigrant	Male long-term immigrant	Male non-immigrant	Female recent immigrant	Female long-term immigrant	Female non-immigrant	p-Values (χ^2)
	N=3336 (2.9)	*N=11039 (8.3)*	*N=86094 (38.2)*	*N*=3858 (3.2)	*N*=12691 (8.6)	*N*=99885 (38.9)	
	n (%)	*n (%)*	*n (%)*	n (%)	n (%)	n (%)	
Education							
Less than secondary	555 (13.6)	1376 (10.4)	21210 (20.1)	570 (14.4)	1893 (13.1)	22059 (18.5)	<.0001
Secondary	511 (18.4)	2041 (19.5)	19042 (23.4)	569 (15.9)	2616 (20.5)	22250 (22.7)	
Post-secondary	2243 (67.3)	7432 (68.0)	44802 (55.2)	2669 (68.3)	7949 (64.2)	54366 (57.5)	
Missing	27 (0.6)	199 (2.0)	1040 (1.5)	50 (2.2)	233 (2.2)	1210 (1.4)	
Perceived health status							
Excellent	1199 (35.5)	2333 (22.7)	18197 (24.4)	1207 (30.1)	2520 (20.6)	21230 (24.0)	<.0001
Very good	1173 (34.3)	3615 (33.5)	31146 (37.7)	1336 (33.9)	3988 (31.0)	37441 (38.7)	
Good	806 (25.5)	3442 (31.5)	24836 (27.2)	1092 (29.6)	4072 (33.2)	27517 (26.1)	
Fair	121 (3.6)	1133 (8.7)	8566 (7.8)	172 (5.0)	1441 (10.2)	9890 (8.3)	
Poor	35 (1.1)	491 (3.5)	3204 (2.7)	46 (1.2)	630 (4.4)	3661 (2.9)	
Missing	2 (0.1)	25 (0.1)	145 (0.1)	5 (0.2)	40 (0.5)	146 (0.1)	

Source: Canadian Community Health Survey 2015-2018, Statistics Canada

Patterns of access to primary care by immigration and sex/gender group

Where and how respondents sought primary care differed substantially among groups. Percentages of respondents reporting no usual place for immediate care were highest among male and female recent immigrants (20.7% and 14.6% respectively) followed by male non-immigrants and male long-term immigrants (14.3% and 11.5% respectively). Compared to female non-immigrants, odds of having a usual place for immediate care were significantly lower across all groups except among female long-term immigrants in both unadjusted and adjusted analysis. Odds were lowest among male recent immigrants (AOR: 0.36, 95% CI: 0.32 - 0.42) (Table 4.3, Figure 4.1). More male recent immigrants and male non-immigrants (9.8% and 5.6% respectively) followed by female recent immigrants (4.7%) reported no regular care provider because of no need (Table 4:2). In adjusted and unadjusted analysis, male recent immigrants and male non-immigrants had higher odds of having no regular provider because of no need compared to female non-immigrants (AOR male recent immigrants: 3.98, 95% CI:3.24-4.90, AOR male non-immigrants: 2.18, 95% CI: 2.0 - 2.37).

Higher percentages of male and female recent immigrants (46.5% and 44% respectively) reported a walk-in clinic or emergency room as their usual place for immediate care followed by male non-immigrants (39.1%). Male and female long-term immigrants had the lowest percentages of reporting a walk-in clinic or emergency department as usual place for immediate care (31% and 30.1% respectively). In adjusted and unadjusted analysis, male and female recent immigrants had higher odds of using a walk-in clinic or emergency room for a usual place immediate care compared to female non-immigrant (AOR male recent immigrant: 1.82, 95% CI: 1.61 - 2.05), (AOR female recent immigrant: 1.62, 95% CI: 1.43 - 1.83) (Table 4.3, Figure 4.1).

The percentage of male and female recent immigrants (54% and 52.4% respectively) who reported having same or next day appointments were slightly higher than long-term immigrants and non-immigrants (Table 4.2). Adjusted and unadjusted odds of having same or next day appointment were also slightly higher among male and female recent immigrants (AOR male recent immigrants vs female non-immigrants: 1.82, 95% CI: 1.61-2.05), (AOR female recent immigrants vs female non-immigrants: 1.62 ,95% CI: 1.43 - 1.83).

A lower percentage of male and female recent immigrants (55.5% and 66.0% respectively) reported to have consulted a general practitioner in past twelve months compared to other groups (Table 4:2). Compared to female non-immigrants, odds among recent immigrants were lowest (AOR male recent immigrants vs female non-immigrants : 0.43, 95% CI : 0.37 - 0.50), (AOR female recent immigrant vs female non-immigrant : 0.67, 95% CI : 0.56 - 0.78). Odds were similar between female long-term immigrants and female non-immigrants (Table 4:3).

Summary of immigration and sex/gender interaction effects:

Significant interaction terms for immigration group and sex/gender effects were observed for having a usual place of care ($p < 0.0060$), type of usual place of care ($p < 0.0001$) and having relative significance for no regular provider because of no perceived need ($p < 0.0701$). For each of these variables, male recent immigrants appeared to experience greater barriers to access than would be predicted based on immigration group and sex/gender independently. Male recent immigrants were also most likely to receive a same or next-day appointment and least likely to have seen a family doctor/general practitioner, though the interaction effects did not reach statistical significance.

Table 4.2. Unweighted counts, weighted percentages and p-values for primary care outcomes stratified by immigrantion group and sex/gender, CCHS 2015-2018

	Male recent immigrant	Male long-term immigrant	Male non-immigrant	Female recent immigrant	Female long-term immigrant	Female non-Immigrant	p-Values (χ^2)
	(*N*= 3336)	*(N*=11039*)*	(*N*=86094)	(*N*=3858)	(*N*=12691)	(*N=99885)*	
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	
Perception of needs and desire for care							
No regular provider no need							
Yes	317 (9.8)	408 (3.9)	4665 (5.6)	191(4.7)	283 (2.4)	2690 (2.6)	<.0001
No	2978(90.3)	10603 (96.1)	80902 (94.4)	3638 (95.3)	12381 (97.6)	96817 (97.4)	
Primary care seeking							
Has usual place for immediate care for minor problem							
Yes	2615 (79.3)	9812 (88.5)	74214 (85.7)	3256 (85.5)	11641 (91.49)	91330 (91.3)	<.0001
No	697 (20.7)	1186 (11.5)	11540 (14.3)	584 (14.6)	1014 (8.5)	8195 (8.7)	
Type of usual place for immediate care for minor problem							
Walk-in clinic/ER	1231 (46.5)	2977 (31.0)	27284 (39.1)	1424 (44.0)	3231 (30.1)	27284 (32.4)	<.0001
Some other place	1374 (53.5)	6810 (69.0)	46680 (60.9)	1825 (56.0)	8383 (60.9)	63134 (67.6)	
Health care reaching							
Waiting time for Immediate care for minor problem							
Same/Next Day appointment	1092 (54.0)	4300 (51.6)	24377 (40.8)	1398 (52.4)	5041 (48.3)	30682 (40.0)	<.0001
More than Same/Next day	953 (46.0)	4649 (48.5)	39049 (59.2)	1325 (47.6)	5812 (51.7)	51883 (60.0)	

	Male recent immigrant	Male long-term immigrant	Male non-immigrant	Female recent immigrant	Female long-term immigrant	Female non-Immigrant	p-Values (χ^2)
	(*N*= 3336)	*(N*=11039*)*	(*N*=86094)	(*N*=3858)	(*N*=12691)	(*N=99885)*	
	n (%)	n (%)	n (%)	n (%)	n (%)	n (%)	
Health care utilization							
Consulted with a family doctor or general practitioner							
Yes	842 (55.5)	3770 (68.2)	27040 (76.9)	1156 (66.0)	4733 (76.9)	36767 (74.2)	<.0001
No	699 (44.5)	1513 (31.8)	15062 (38.0)	612 (34.0)	1270 (23.1)	12086 (25.8)	

Source: Canadian Community Health Survey, Statistics Canada

Table 4.3. Adjusted and unadjusted odds ratios for chosen primary care outcomes by immigration group and sex, p-values for tests of interaction effects, CCHS 2015-2018

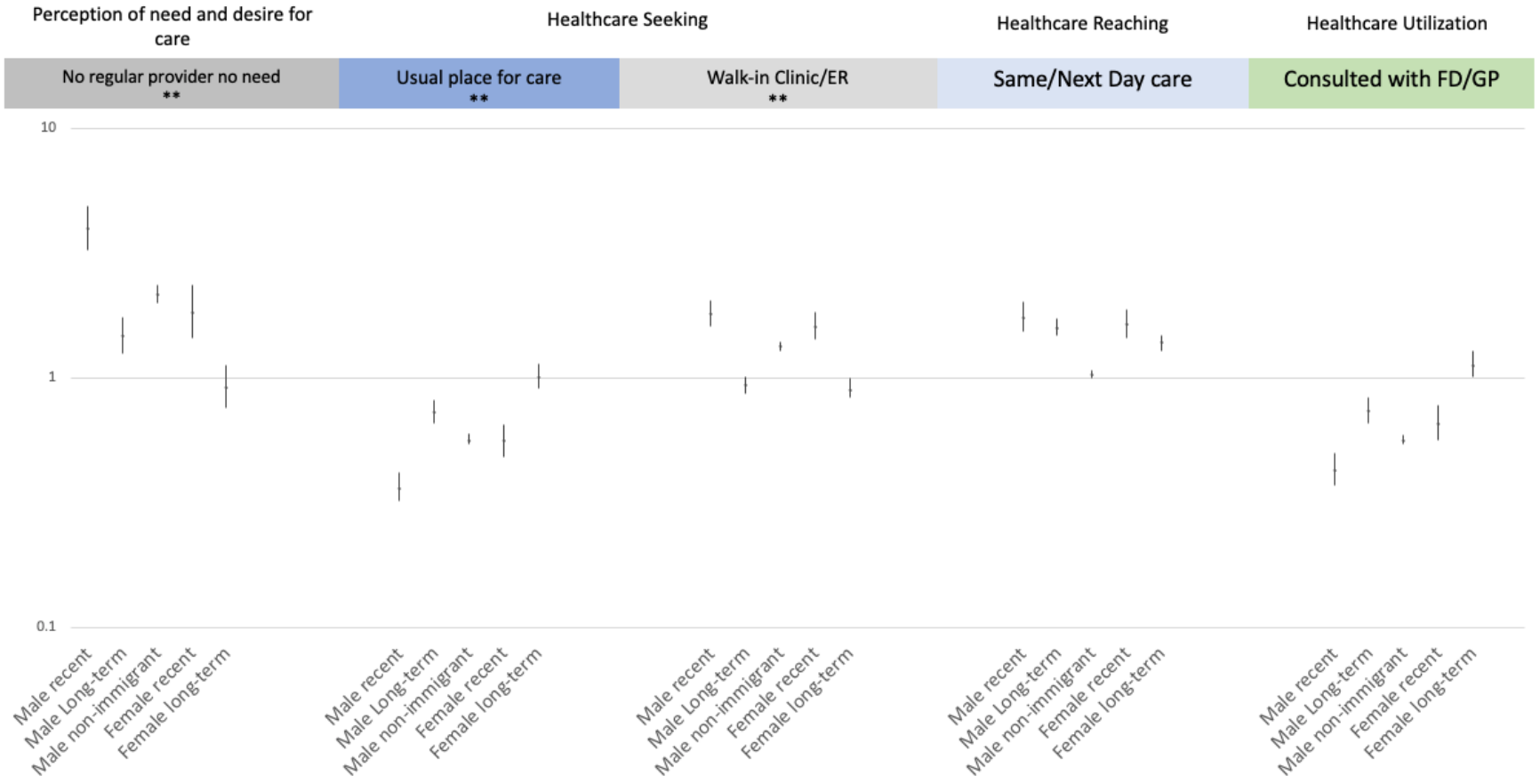
	Unadjusted Estimates	Adjusted Estimates	p-Values (χ^2)
	OR (95% CI)	OR (95% CI)	Immigration group * sex/gender
Perception of needs and desire for care			
No regular provider no need (Yes vs No) N=215,873			
Male recent immigrant vs Female non-immigrant	4.00 (3.25 - 4.92)	3.98 (3.24 - 4.90)	0.0710
Male long-term immigrant vs Female non-immigrant	1.50 (1.26 - 1.77)	1.49 (1.25 - 1.76)	
Male non-immigrant vs Female non-immigrant	2.20 (2.02 - 2.39)	2.18 (2.00 - 2.37)	
Female recent immigrant vs Female non-immigrant	1.83 (1.44 - 2.32)	1.84 (1.44 - 2.36)	
Female long-term immigrant vs Female non-immigrant	0.92 (0.76 - 1.10)	0.92 (0.76 - 1.12)	
Primary Care Seeking			
Usual place for immediate care for minor problem (Yes vs No) N=216,084			
Male recent immigrant vs Female non-immigrant	0.37 (0.32 - 0.42)	0.36 (0.32 - 0.42)	0.0060
Male long-term immigrant vs Female non-immigrant	0.74 (0.66 - 0.82)	0.73 (0.66 - 0.82)	
Male non-immigrant vs Female non-immigrant	0.57 (0.54 - 0.60)	0.56 (0.54 - 0.60)	
Female recent immigrant vs Female non-immigrant	0.56 (0.49 - 0.65)	0.56 (0.48 - 0.65)	
Female long-term immigrant vs Female non-immigrant	1.03 (0.92 - 1.15)	1.01 (0.91 - 1.14)	
Type of usual place for immediate care for minor problem (Walk-in Clinic/ER vs Some other place) N=192,312			
Male recent immigrant vs Female non-immigrant	1.82 (1.61 - 2.05)	1.82 (1.61 - 2.05)	<0.0001
Male long-term immigrant vs Female non-immigrant	0.94 (0.87 - 1.01)	0.94 (0.87 - 1.01)	
Male non-immigrant vs Female non-immigrant	1.34 (1.29 - 1.39)	1.34 (1.29 - 1.39)	
Female recent immigrant vs Female non-immigrant	1.64 (1.46 - 1.85)	1.62 (1.43 -1.83)	

	Unadjusted Estimates	Adjusted Estimates	p-Values (χ^2)
	OR (95% CI)	OR (95% CI)	Immigration group * sex/gender
Female long-term immigrant vs Female non-immigrant	0.98 (0.84 - 1.00)	0.90 (0.83 -1.00)	
Health Care Reaching			
Same/Next Day for immediate care for minor problem (Same/Next Day vs More than same or next day) N=170,561			
Male recent immigrant vs Female non-immigrant	1.76 (1.54 - 2.02)	1.76 (1.54 - 2.02)	0.1241
Male long-term immigrant vs Female non-immigrant	1.60 (1.48 - 1.72)	1.60 (1.48 - 1.73)	
Male non-immigrant vs Female non-immigrant	1.04 (1.00 - 1.10)	1.03 (1.00 - 1.07)	
Female recent immigrant vs Female non-immigrant	1.65 (1.46 - 1.87)	1.64 (1.45 - 1.87)	
Female long-term immigrant vs Female non-immigrant	1.41 (1.31 - 1.51)	1.39 (1.29 - 1.49)	
Health Care Utilization			
Consulted with a family doctor or general practitioner (Yes vs No) N=105,550			
Male recent immigrant vs Female non-immigrant	0.43 (0.37 - 0.50)	0.43 (0.37 - 0.50)	0.1157
Male long-term immigrant vs Female non-immigrant	0.74 (0.67 - 0.83)	0.74 (0.66 - 0.83)	
Male non-immigrant vs Female non-immigrant	0.57 (0.54 - 0.60)	0.56 (0.54 - 0.59)	
Female recent immigrant vs Female non-immigrant	0.67 (0.58 - 0.79)	0.66 (0.56 - 0.78)	
Female long-term immigrant vs Female non-immigrant	1.15 (1.03 - 1.29)	1.13 (1.01 - 1.28)	

Source: Canadian Community Health Survey, Statistics Canada

Note: Covariates in multivariable models used to generate adjusted estimates include age, racialization, sexual orientation, region of residence, marital status, knowledge of official language, partial/full insurance for prescription medications, personal income, education and perceived health stat

Figure 4.1. Log-scale graph showing adjusted odds estimates and 95% CI of sex/gender and immigrant groups compared to female non-immigrants



Note: Covariates in multivariable models used to generate adjusted estimates include age, racialization, sexual orientation, region of residence, marital status, knowledge of official language, partial/full insurance for prescription medications, personal income, education and perceived health status

4.4. Discussion and interpretation of results

In this study of how sex/gender interact with immigration groups to shape patterns of access to primary care, I find that there are significant differences between immigration groups across all primary care measures and patterns differ by sex/gender. Overall, a higher percentage of male respondents across all immigration groups were likely to report lower access to primary care including having a regular place of care, usual place for immediate care for minor problem and consultations with a family doctor or general practitioner. Across stages of the Levesque framework, interaction effects of immigration and sex/gender were significant for measures describing how respondents seek primary care services, but not for health care utilization.

Even after adjusting for other explanatory factors, immigration and sex/gender groups still corresponded to pronounced differences in patterns of access to primary care services. Irrespective of immigration group, male respondents across all groups were less likely to have a regular provider because of no need, less likely to have a usual place for immediate care for minor problem, more likely to use a walk-in or emergency room and less likely to have consulted with a family doctor or general practitioner than all females except female recent immigrants. This is consistent with previous research (46,54,101). Observed differences appear to be more pronounced in patterns of how respondents perceive need and desire for care and how they seek primary care. This pattern may speak to the role of gender norms and roles in shaping perception and interpretation of symptoms or sickness among men and women, and resulting health care seeking patterns (60). The higher percentage of male respondents reporting no regular provider because of no need and lower percentage of male respondents reporting a usual place may be linked to performative gender roles and how they impact men's perception and interpretation of illness (60). Previous research also shows that due to gender roles, women show a higher interest and concern with health than men which manifests in increased symptom report and desire for care (56,60), and may subsequently affect utilization of health services (60). However, within our data I cannot distinguish between sex and gender. It is also possible that biological factors including reproductive, metabolic and hormonal characteristics shape morbidity among male and female respondents and (44) and subsequent health care use (60,61).

While there are significant differences in patterns of access to primary care by sex/gender, differences are even more pronounced with recency of immigration. For example, even among males, male recent immigrants have highest odds of reporting no usual place for immediate care and not having a regular provider because of no need, and lowest odds of consulting with a family doctor/ general practitioner. Similar patterns are observed comparing recent female immigrants to non-immigrant females. Observed patterns among recent immigrants may be linked to sociocultural factors such as religious and cultural beliefs which are important in the construction of gender norms and conceptions of masculinity (63,106). Other cited reasons for the patterns observed among recent immigrants include competing needs and opportunity costs of seeking health care given that other settlement needs may be prioritized such as employment, education or family settlement (20,77,102). It is possible that these competing needs also differ by sex/gender. The structure and delivery of primary care services may also account for the observed patterns among recent immigrant men and women. For example, whether health care services provide culturally responsive and safe health care including diversity, outreach services and language interpreter services may shape how and whether recent immigrants experience health care as approachable and acceptable. This is evidenced is in the numerous research that cites unmet need among recent immigrants based on how responsive services were to their cultures, language and beliefs (5,8,10,79,107).

Findings underscore significant interactions of immigration and sex/gender in shaping patterns of access to primary care. Particularly, recency of immigration and being male appears to negatively impact patterns of access across most measures. This highlights the need for approachable health services that meet the diverse needs of immigrants, especially male recent immigrants, and the importance of more research that adopts an intersectional lens to help understand experiences of health service use and perception of health among immigrant men. It may be particularly important to understand the initial stages of access and perceived accessibility and approachability of health services for recent immigrant men. Findings may also point to the need for more active outreach programs where health care meets patients including mobile health clinics, screening, and health drives in workplaces. Programs like mobile health clinics are reported to improve access for men as they are shown to attract male patients who make up fifty percent of mobile health clinic clients (108).

4.5. Limitations of study

A fundamental limitation of this research is that the CCHS asks respondents if they are male or female, but whether respondents interpret this to mean sex at birth, legal sex, or gender is not clear. Secondary analysis of the sex/gender variable within the CCHS limits the interpretation of results and imposes a cisnormative binary. In addition, possible explanatory variables like “racialization” which may have been important for interpretating research results were limited and not broken down into comprehensive categories in the CCHS public use micro data files. A condensed measure of racialization is used although limited with two only two categories “White or Non-White”. Although limited, stratified analysis using this variable was completed and did not alter findings with respect to immigration and sex/gender. Additionally, survey samples may be limited in representation of recent immigrants. Recent immigrants had a lower response rate compared to other immigration groups, which was expected given there might be limiting factors to responding to the survey such as time constraints, language barriers or fear of participating in a national survey. Although survey weights are applied to account for lower response rates from some groups, survey weights do not correct for non-response bias, which could mean gaps in access to care may be even greater than observed in this analysis.

4.6. Conclusion

Findings reveal associations between immigration, sex/gender, and primary care access even after accounting for possible explanatory variables. Findings call into question the approachability and accessibility of primary care services, particularly for recent male immigrants. Remodeling health systems to reflect intersecting needs of immigrant populations is important to mitigate observed effects of immigration on patterns of access to care, especially among recent immigrants.

Chapter 5.

Conclusion

Findings confirm immigration is an important predictor of health services use, including both potential and realized access. Results reveal substantial differences in patterns of access to primary care among immigration groups, and interactions with sex/gender. Recent immigrants differed from long-term immigrants and non-immigrants in relation to perception of need, how and where they seek care, and ultimately utilization of primary care services. Differences were even more marked comparing male recent immigrants to other groups. Long-term immigrants were similar to non-immigrants with respect to perception of need and how and where they seek care, but still differed with respect to utilization of primary care services. This is consistent with previous research that has observed differences in having a regular doctor by immigration group (6,11) as well as qualitative studies that have highlighted unmet need among immigrants due to difficulties accessing needed care (7–10). Findings suggest that research that has not observed differences in use of health services (3–5) may not have been attentive to pathways of access or differences within immigration groups by length of time in Canada.

Important findings and implications

That differences between immigration and sex/gender groups remain even after accounting for possible individual explanatory variables points to gaps in service delivery, and structural factors like xenophobia, racism, and sexism that play out within the context of the health care system. In particular, even when primary care services are publicly funded, accessibility, approachability, and availability of primary care services for immigrant groups are still limited. Results from this study are relevant to informing primary care policy and planning to ensure responsiveness of the Canadian health care system to the diverse and intersecting needs of immigrants. Policies aimed at improving approachability of health care for immigrant communities are needed to bridge gaps in health literacy and knowledge of a new system. Findings suggest walk-in clinics may be more approachable, acceptable, and/or available, and may offer lessons for other models of primary care delivery (109). Remodelling primary care services to respond to diverse cultural and health care needs by making them more approachable and accessible will

help reduce disparities in access to primary care and may ultimately improve health outcomes among Canada's immigrant communities.

Observations reflect significant gaps in developing responsive and approachable care to meet men's unmet health care needs, which has not yet been a topic that has received much research attention in Canada (10,110). Such responsiveness is important to provide easier navigation and may mitigate gendered health seeking patterns among men. Results suggest sex/gender-based differences in seeking and using health care may be shaped by differences in perception of need for care. This includes perception and interpretation of illness and symptoms and readiness to adopt the sick role (12). Differential experiences and perception of symptoms between men and women may be mitigated through health information sharing tailored to immigrant men. Culturally responsive and safe practices are also important to improving accessibility and approachability of health care services among immigrant men who may have diverse and specific cultural needs.

The Levesque framework (12), used to guide this research study is useful for reconceptualization of access and examination of health services use. Particularly, the Levesque, framework is useful in dissecting the impact of immigration on patterns of access and where gender-specific differences arise in accessing health services. The importance of distinguishing potential from realized access enabled by the framework also provides in-depth understanding into the nature of barriers and patterns of access and health services use. Altogether, this has allowed for clear identification of areas of policy intervention and remodelling. While this framework has been useful, more refined measures of access to care matching the framework are needed to comprehensively examine patterns of access.

Limitations

The CCHS sample aims to include respondents who are representative of the Canadian population. However, differential characteristics between populations may limit responses from certain communities more than others. Immigrant communities may experience more barriers to responding to surveys like the CCHS compared to non-immigrants and may be less likely to be represented. The characteristics of people who do not respond to the CCHS have not been studied, but there is evidence of non-response bias on the CCHS (96) Response biases due to language barriers are somewhat mitigated

by Statistics Canada hiring interviewers with a range of language competencies where necessary. However, non-response biases may still be present. For example, people who do respond may have more trust in government systems, having time available to complete a survey, or other characteristics that mean they differ from those who do not with respect to outcomes of interest (95). Research should explore this directly, as survey data are used to inform planning decisions. Additionally, due to updates of survey content and questions, certain variables are not included in the later cycle (2017/18), however, cell counts from the 2015/16 were enough to include those variables of interest.

On the CCHS, the variable "sex" is used with two categorical responses: "male" or "female." Whether it is biological sex or gender that is captured when respondents select between these options is not clear. Data pertaining to gender are not collected and we used the variable to capture differences pertaining to both sex and gender. As such, this limits the interpretation of results and imposes a cisnormative binary.

The Levesque framework was helpful in conceptualizing and operationalizing access to identify specific ways patterns of access differed between immigration and sex/gender groups. However, variables from the CCHS were not exactly compatible with the framework. Discretion and previous research were used to align variables to each stage of the framework. However, categorization of variables using the Levesque framework is open to disagreement and fundamentally limited by the fact that questions were not developed with the framework in mind. However, compared to other models of health service use and access the Levesque framework is useful for more carefully conceptualizing and examining access. Variables on the CCHS were also limited as known measures like unmet need captured in previous years of the survey were not included in 2015-2018.

Strengths of Study

While there are limitations to the study as mentioned above, there are key strengths and contributions to health services research concerning immigration and health in Canada. The study particularly tries to resolve the conflicting evidence on patterns of access to care among immigrants through the use of a contemporary and nuanced framework of studying access, as well as attention to differences within immigration groups by length of time in Canada. The conceptual framework used provides for in depth

analysis of patterns of access. Contrary to previous studies that examine access as a measure of initial contact or use of health service as a proxy for access, this study using the Levesque framework examines patterns of access from the initial identification of health care need to actualized utilization of access. By doing so, the study unpacks nuanced differences in patterns of access between immigrants and non-immigrants.

Additionally, the study also examines the interaction of sex/gender and immigration and how it shapes patterns of access which has been a major gap in immigration and health services research. By stratifying immigration groups by sex/gender, specific gendered differences among immigrants are observed.

Directions for future research

Observed patterns of use of walk-in clinics among recent immigrants may help inform ways that other primary care practices can be more approachable, acceptable, and available to immigrants. At the same time, improvements to the quality of care within walk-in clinics including language interpreters and culturally safe practices along with assurance of continuity of care may strengthen primary care received by immigrant communities. Future research could explore in greater depth what is working well within the walk-in clinic setting, as well as investigate quality improvement interventions.

Our findings suggest that sex or gender shapes differences in patterns of health care seeking, reaching and utilization and the magnitude of the effect differs between immigrants and non-immigrant as well as between recent and long term-immigrants. Additionally, research that more accurately measures sex and gender will provide for more nuanced and improved examinations of the impact of sex/gender on patterns of access. Planned changes to data collection by Statistics Canada may support future studies in this area (111).

In addition, more carefully conceived data capturing ethnicity and racialization will be important for future research to study patterns of access to health services. Strength-based data collection through the Canadian Community Survey can be redesigned to capture specific categories beyond the binary categories of “White” or “non-White” available in the public use files. Race-based data will be important to examine patterns of access among recent immigrants as to develop specific responsive measures to mitigate race-related barriers to care.

While the survey tries to capture a representative sample of Canada's population, certain groups like immigrants may be underrepresented due to factors such as language barriers, conflicting demands on time, fear of disclosure of information to authorities among others. Such barriers may affect their response rate on the survey compared to non-immigrants which may ultimately lead to non-response biases in studies like this. Future research in this area may use administrative data to address non-response biases.

While quantitative studies document differences by immigration group and sex/gender in patterns of access to primary care, qualitative, and community-based research may provide further insights. Qualitative and community-based research within recent immigrant communities, and men in particular, may help examine more specific experiences of care, and can inform the development of community-centered response strategies in primary care.

To summarize, findings show differences in patterns of access to primary care among immigration groups. Particularly, patterns of access differed among recent immigrants compared to long-term and non-immigrants, especially in early stages of system navigation. While patterns of access for some measures were similar between long-term immigrants and non-immigrants, they were still significantly different when it came to utilization of primary care services. Observed differences across immigration groups suggest that gaps in accessibility, approachability and availability of services create differential access patterns specifically for recent immigrants. Interaction of sex/gender with immigration appears to significantly shape patterns of access to primary care. Particularly, recency of immigration and being male are observed to negatively impact patterns of access including having a regular place of care and a usual place for immediate care for a minor problem as well as consultations with a family doctor or general practitioner. Findings underscore the need for approachable health services planned with an intersectional lens to address the varied primary care needs of people living in Canada.

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Appendix A

Table A.1. Unadjusted (univariable) and adjusted (multivariable) odds ratios and 95% CI for "no regular provider because of no need"

Characteristics	Undajused Odds Estimates	Adjusted Odds Estimates
***N* = 222,949**	**(95% CI)**	**(95% CI)**
Age group (Years)		
18 to 34 vs 35 to 54	0.94 (0.84 - 1.05)	0.94 (0.83 - 1.06)
55 to 74 vs 35 to 54	1.00 (0.88 - 1.08)	0.97 (0.87 - 1.07)
75+ vs 35 to 54	0.82 (0.72 - 0.93)	0.84 (0.74 - 1.00)
Sex		
Male vs Female	2.11 (1.95 - 2.28)	2.09 (1.93 - 2.26)
Racialization		
Non-White vs White	1.07 (0.95 - 1.20)	0.93 (0.82 - 1.05)
Sexual Orientation		
Gay/Bisexual vs Heterosexual	0.91 (0.72 - 1.15)	1.13 (0.90 - 1.28)
Region of residence		
Atlantic Canada (NB, Newfoundland, PEI, NS) vs Ontario	0.96 (0.83 - 1.10)	0.96 (0.84 - 1.10)
Quebec vs Ontario	1.10 (0.98 - 1.22)	1.07 (0.96 - 1.19)
The Prairies (Manitoba, Alberta, Saskatchewan) vs Ontario	1.07 (0.96 - 1.19)	1.04 (0.94 - 1.16)
The Territories vs Ontario	0.97 (0.86 - 1.10)	0.97 (0.86 - 1.10)
British Columbia vs Ontario	0.96 (0.76 - 1.22)	0.94 (0.73 - 1.22)
Marital status		
Widowed/Separated/divorced/Single vs Married/common-law	0.97 (0.90 - 1.05)	1.00 (0.92 - 1.10)
Knowledge of official language		
Neither English nor French vs English/French	0.80 (0.52 - 1.24)	0.95 (0.60 - 1.48)
Insurance-prescription medications-all/part		
No vs Yes	0.88 (0.78 - 1.00)	0.89 (0.82 - 0.96)
Personal income		
$40k to $79k vs Less than $39k	1.21 (1.10 - 1.34)	1.10 (0.98 - 1.19)
$80k+vs Less than $39k	1.24 (1.10 - 1.39)	1.02 (0.90 - 1.17)
Education Level		
Less than Secondary vs Post-Secondary	1.09 (1.00 - 1.20)	1.08 (0.96 - 1.21)
Secondary vs Post- Secondary	1.00 (0.91 - 1.10)	1.02 (0.92 - 1.11)
Perceived health status		
Excellent vs Very Good	1.08 (0.98 - 1.20)	1.07 (0.97 - 1.19)
Good vs Very Good	0.97 (0.88 - 1.06)	0.97 (0.88 - 1.06)
Fair vs Very Good	0.91 (0.79 - 1.05)	0.93 (0.80 - 1.08)
Poor vs Very Good	1.28 (1.01 - 1.64)	1.32 (1.03 - 1.69)

Table A.2. Unadjusted (univariable) and adjusted (multivariable) odds ratios and 95% CI for "has a regular provider"

Characteristics	Undajused Odds Estimates	Adjusted Odds Estimates
***N* = 222,949**	**(95% CI)**	**(95% CI)**
Age group (Years)		
18 to 34 vs 35 to 54	1.02 (0.96 - 1.09)	1.02 (0.96 - 1.09)
55 to 74 vs 35 to 54	1.00 (0.95 - 1.06)	1.01 (0.96 - 1.07)
75+ vs 35 to 54	1.06 (0.98 - 1.14)	1.04 (0.95 - 1.12)
Sex		
Male vs Female	0.56 (0.53 - 0.58)	0.55 (0.53 - 0.58)
Racialization		
Non-White vs White	1.07 (1.00 - 1.15)	1.09 (1.01 - 1.17)
Sexual orientation		
Gay/Bisexual vs Heterosexual	1.01 (0.88 - 1.15)	0.98 (0.86 - 1.12)
Region of residence		
Atlantic Canada (NB, Newfoundland, PEI, NS) vs Ontario	1.02 (0.95 - 1.10)	1.02 (0.95 - 1.10)
Quebec vs Ontario	0.96 (0.90 - 1.02)	0.98 (0.92 - 1.04)
The Prairies (Manitoba, Alberta, Saskatchewan) vs Ontario	0.97 (0.91 - 1.03)	0.99 (0.93 - 1.05)
The Territories vs Ontario	0.97 (0.91 - 1.05)	0.97 (0.91 - 1.04)
British Columbia vs Ontario	1.01 (0.88 - 1.16)	1.00 (0.86 - 1.16)
Marital status		
Widowed/Separated/divorced/Single vs Married/common-law	1.03 (0.99 - 1.08)	1.00 (0.96 - 1.05)
Knowledge of official language		
Neither English nor French vs English/French	1.03 (0.76 - 1.40)	0.91 (0.67 - 1.25)
Insurance-prescription medications-all/part		
No vs Yes	1.05 (0.98 - 1.13)	1.06 (0.98 - 1.14)
Personal Income		
$40k to $79k vs Less than $39k	0.89 (0.85 - 0.94)	0.98 (0.93 - 1.03)
$80k+ vs Less than $39k	0.87 (0.82 - 0.93)	1.02 (0.95 - 1.09)
Education Level		
Less than Secondary vs Post-Secondary	0.96 (0.91 - 1.02)	0.98 (0.91 - 1.05)
Secondary vs Post- Secondary	1.01 (0.96 - 1.06)	1.00 (0.95 - 1.06)
Perceived health status		
Excellent vs Very Good	0.98 (0.92 - 1.03)	0.98 (0.92 - 1.04)
Good vs Very Good	1.04 (0.98 - 1.09)	1.04 (0.99 - 1.10)
Fair vs Very Good	1.02 (0.94 - 1.10)	1.01 (0.93 - 1.09)
Poor vs Very Good	0.92 (0.82 - 1.04)	0.92 (0.81 - 1.03)

Table A.3. Unadjusted (univariable) and adjusted (multivariable) odds ratios and 95% CI for "no regular provider because didn't try to find to one"

Characteristics	Undajused Odds Estimates	Adjusted Odds Estimates
***N* = 222,949**	**(95% CI)**	**(95% CI)**
Age group (Years)		
18 to 34 vs 35 to 54	0.97 (0.86 - 1.08)	0.95 (0.84 - 1.08)
55 to 74 vs 35 to 54	0.96 (0.87 - 1.05)	0.95 (0.85 - 1.05)
75+ vs 35 to 54	0.99 (0.84 - 1.12)	1.02 (0.87 - 1.20)
Sex		
Male vs Female	2.51 (2.31-2.72)	2.57 (2.36 - 2.78)
Racialization		
Non-White vs White	0.93 (0.82 -1.07)	0.91 (0.79 - 1.05)
Sexual orientation		
Gay/Bisexual vs Heterosexual	0.94 (0.75 -1.18)	0.96 (0.76 - 1.21)
Region of residence		
Atlantic Canada (NB, Newfoundland, PEI, NS) vs Ontario	0.99 (0.87 - 1.13)	1.00 (0.87 - 1.14)
Quebec vs Ontario	1.07 (0.96 - 1.19)	1.04 (0.94 - 1.16)
The Prairies (Manitoba, Alberta, Saskatchewan) vs Ontario	1.09 (0.98 - 1.21)	1.07 (0.97 - 1.20)
The Territories vs Ontario	1.12 (0.98 - 1.28)	1.11 (0.98 - 1.27)
British Columbia vs Ontario	1.02 (0.78 - 1.32)	1.04 (0.80 - 1.37)
Marital status		
Widowed/Separated/divorced/Single vs Married/common-law	1.03 (0.95 - 1.11)	1.04 (0.95 - 1.13)
Knowledge of official language		
Neither English nor French vs English/French	0.88 (0.53 - 1.48)	1.03 (0.60 - 1.76)
Insurance-prescription medications-all/part		
No vs Yes	0.95 (0.84 - 1.09)	0.93 (0.81 - 1.06)
Personal income		
$40k to $79k vs Less than $39k	1.13 (1.03 - 1.24)	1.00 (0.90 - 1.09)
$80k+ vs Less than $39k	1.20 (1.07 - 1.36)	0.96 (0.84 - 1.09)
Education level		
Less than Secondary vs Post-Secondary	0.98 (0.89 - 1.08)	0.94 (0.82 - 1.07)
Secondary vs Post- Secondary	1.01 (0.92 - 1.11)	1.00 (0.90 - 1.10)
Perceived health status		
Excellent vs Very Good	1.06 (1.00 - 1.17)	1.06 (0.95 - 1.17)
Good vs Very Good	0.98 (0.89 - 1.01)	0.97 (0.88 - 1.07)
Fair vs Very Good	1.06 (0.91 - 1.22)	1.06 (0.90 - 1.23)
Poor vs Very Good	1.22 (1.00 - 1.49)	1.23 (1.00 - 1.85)

Table A.4. Unadjusted (univariable) and adjusted (multivariable) odds ratios and 95% CI for "has a usual place for immediate care for minor problem"

Characteristics	Undajused Odds Estimates	Adjusted Odds Estimates
***N* = 222,949**	**(95% CI)**	**(95% CI)**
Age group (Years)		
18 to 34 vs 35 to 54	1.03 (0.96 - 1.11)	1.03 (0.96 - 1.11)
55 to 74 vs 35 to 54	1.06 (1.00 - 1.13)	1.05 (0.99 - 1.12)
75+ vs 35 to 54	1.11 (1.01 - 1.22)	1.06 (0.97 - 1.17)
Sex		
Male vs Female	0.60 (0.57 -0.63)	0.60 (0.57 - 0.63)
Racialization		
Non-White vs White	0.98 (0.91 - 1.07)	1.01 (0.93 - 1.10)
Sexual orientation		
Gay/Bisexual vs Heterosexual	1.02 (0.89 - 1.17)	1.00 (0.87 - 1.16)
Region of residence		
Atlantic Canada (NB, Newfoundland, PEI, NS) vs Ontario	1.02 (0.94 - 1.11)	1.00 (0.92 - 1.09)
Quebec vs Ontario	1.00 (0.94 - 1.07)	1.01 (0.95 - 1.08)
The Prairies (Manitoba, Alberta, Saskatchewan) vs Ontario	1.03 (0.96 - 1.10)	1.03 (0.96 - 1.11)
The Territories vs Ontario	1.10 (1.01 - 1.20)	1.11 (1.02 - 1.20)
British Columbia vs Ontario	1.08 (0.90 - 1.29)	1.07 (0.89 - 1.29)
Marital status		
Widowed/Separated/divorced/Single vs Married/common-law	1.03 (1.00 - 1.08)	0.98 (0.93 - 1.03)
Knowledge of official language		
Neither English nor French vs English/French	0.73 (0.51 - 1.05)	0.65 (0.45 - 0.94)
Insurance-prescription medications-all/part		
No vs Yes	1.01 (0.93 - 1.10)	1.01 (0.93 - 1.10)
Personal income		
$40k to $79k vs Less than $39k	0.91 (0.90 - 0.96)	0.99 (0.93 - 1.05)
$80k+ vs Less than $39k	0.90 (0.79 - 0.92)	0.99 (0.91 - 1.07)
Education level		
Less than Secondary vs Post-Secondary	1.09 (1.03 - 1.16)	1.09 (1.01 - 1.18)
Secondary vs Post- Secondary	1.06 (1.00 - 1.12)	1.05 (1.00 - 1.12)
Perceived health status		
Excellent vs Very Good	0.97 (0.90 - 1.03)	0.97 (0.91 - 1.03)
Good vs Very Good	1.03 (0.97 - 1.09)	1.03 (0.97 - 1.03)
Fair vs Very Good	0.98 (0.90 - 1.07)	0.96 (0.88 - 1.05)
Poor vs Very Good	1.00 (0.87 - 1.12)	0.97 (0.85 - 1.11)

Table A.5. Unadjusted (univariable) and adjusted (multivariable) odds ratios and 95% CI for "walk-in clinic/ER for usual place for immediate care for minor problem"

Characteristics ***N* = 222,949**	**Undajused Odds Estimates** **(95% CI)**	**Adjusted Odds Estimates** **(95% CI)**
Age group (Years)		
18 to 34 vs 35 to 54	1.00 (0.96 – 1.06)	1.00 (0.95 – 1.05)
55 to 74 vs 35 to 54	1.01 (0.97 – 1.05)	1.00 (0.96 – 1.05)
75+ vs 35 to 54	1.01 (0.95 – 1.07)	1.02 (0.96 – 1.01)
Sex		
Male vs Female	1.27 (1.23 – 1.31)	1.28 (1.23 – 1.32)
Racialization		
Non-White vs White	0.98 (0.93 – 1.03)	0.97 (0.92 – 1.02)
Sexual orientation		
Gay/Bisexual vs Heterosexual	0.95 (0.86 – 1.05)	0.95 (0.90 – 1.06)
Region of residence		
Atlantic Canada (NB, Newfoundland, PEI, NS) vs Ontario	1.00 (0.93 - 1.02)	1.00 (0.94 – 1.06)
Quebec vs Ontario	0.98 (0.93 – 1.02)	0.98 (0.93 – 1.02)
The Prairies (Manitoba, Alberta, Saskatchewan) vs Ontario	1.03 (0.98 – 1.08)	1.02 (0.98 – 1.07)
The Territories vs Ontario	1.05 (1.00 – 1.11)	1.05 (1.00 – 1.11)
British Columbia vs Ontario	1.04 (0.93 – 1.17)	1.00 (0.90 – 1.14)
Marital status		
Widowed/Separated/divorced/Single vs Married/common-law	1.00 (0.97 – 1.03)	1.00 (0.97 – 1.05)
Knowledge of official language		
Neither English nor French vs English/French	0.94 (0.75 – 1.18)	0.97 (0.76 – 1.23)
Insurance-prescription medications-all/part		
No vs Yes	0.93 (1.35 – 1.61)	0.92 (0.86 – 0.98)
Personal income		
$40k to $79k vs Less than $39k	1.02 (0.98 – 1.06)	0.98 (0.94 – 1.02)
$80k+ vs Less than $39k	1.05 (1.00 – 1.10)	0.99 (0.93 – 1.04)
Education level		
Less than Secondary vs Post-Secondary	1.02 (0.98 – 1.07)	0.98 (0.93 – 1.03)
Secondary vs Post- Secondary	1.06 (1.01 – 1.10)	1.05 (1.00 – 1.10)
Perceived health status		
Excellent vs Very Good	1.00 (0.95 – 1.04)	1.00 (0.95 – 1.04)
Good vs Very Good	1.00 (0.97 – 1.05)	1.01 (0.97 – 1.05)
Fair vs Very Good	1.02 (0.91 – 1.09)	1.02 (0.96 – 1.09)
Poor vs Very Good	0.69 (0.47 – 1.00)	0.99 (0.90 – 1.08)

Table A.6. Unadjusted (univariable) and adjusted (multivariable) odds ratios and 95% CI for "team-based care for usual place for immediate care"

Characteristics	Undajused Odds Estimates	Adjusted Odds Estimates
***N* = 222,949**	**(95% CI)**	**(95% CI)**
Age group (Years)		
18 to 34 vs 35 to 54	0.97 (0.87 – 1.07)	0.99 (0.88 – 1.10)
55 to 74 vs 35 to 54	0.97 (0.90 – 1.07)	0.99 (0.90 – 1.08)
75+ vs 35 to 54	1.05 (0.93 – 1.19)	1.08 (0.95 – 1.24)
Sex		
Male vs Female	0.87 (0.81 – 0.93)	0.87 (0.80 – 0.93)
Racialization		
Non-White vs White	1.11 (0.98 – 1.25)	1.13 (1.00 – 1.23)
Sexual orientation		
Gay/Bisexual vs Heterosexual	0.01 (0.13 – 0.16)	0.99 (0.80 – 1.22)
Region of residence		
Atlantic Canada (NB, Newfoundland, PEI, NS) vs Ontario	1.06 (0.94 – 1.19)	1.08 (0.96 – 1.22)
Quebec vs Ontario	0.98 (0.88 – 1.09)	0.99 (0.90 – 1.10)
The Prairies (Manitoba, Alberta, Saskatchewan) vs Ontario	1.00 (0.91 – 1.11)	1.01 (0.91 – 1.11)
The Territories vs Ontario	1.00 (0.90 – 1.13)	0.98 (0.87 – 1.11)
British Columbia vs Ontario	0.98 (0.79 – 1.22)	1.02 (0.81 – 1.23)
Marital status		
Widowed/Separated/divorced/Single vs Married/common-law	0.99 (0.92 – 1.06)	1.02 (0.94 – 1.10)
Knowledge of official language		
Neither English nor French vs English/French	1.27 (0.64 – 2.52)	1.25 (0.64 – 2.45)
Insurance-prescription medications-all/part		
No vs Yes	1.01 (0.92 – 1.11)	1.02 (0.92 – 1.12)
Personal income		
$40k to $79k vs Less than $39k	1.06 (0.97 – 1.16)	1.10 (1.00 – 1.21)
$80k+ vs Less than $39k	1.08 (0.96 – 1.20)	1.14 (1.01 – 1.29)
Education level		
Less than Secondary vs Post-Secondary	1.02 (0.93 – 1.11)	1.05 (0.94 – 1.18)
Secondary vs Post- Secondary	1.02 (0.93 – 1.12)	1.04 (0.95 – 1.15)
Perceived health status		
Excellent vs Very Good	1.02 (0.92 – 1.12)	1.02 (0.92 – 1.12)
Good vs Very Good	1.07 (0.98 – 1.17)	1.07 (0.98 – 1.18)
Fair vs Very Good	0.95 (0.84 – 1.08)	0.96 (0.84 – 1.09)
Poor vs Very Good	0.92 (0.75 – 1.14)	0.94 (0.77 – 1.16)

Table A.7. Unadjusted (univariable) and adjusted (multivariable) odds ratios and 95% CI for last visit to Hospital Emergency room for condition treatable at regular primary care provider

Characteristics ***N* = 222,949**	**Undajused Odds Estimates** **(95% CI)**	**Adjusted Odds Estimates** **(95% CI)**
Age group (Years)		
18 to 34 vs 35 to 54	1.04 (0.91 – 1.19)	1.03 (0.90 – 1.18)
55 to 74 vs 35 to 54	1.00 (0.89 – 1.11)	1.01 (0.90 – 1.14)
75+ vs 35 to 54	1.03 (0.84 – 1.25)	1.06 (0.90 – 1.23)
Sex		
Male vs Female	0.93 (0.85 – 1.02)	0.92 (0.83 – 1.01)
Racialization		
Non-White vs White	1.06 (0.91 – 1.24)	1.05 (0.90 – 1.23)
Sexual orientation		
Gay/Bisexual vs Heterosexual	1.06 (0.81 – 1.38)	1.05 (0.80 – 1.37)
Region of residence		
Atlantic Canada (NB, Newfoundland, PEI, NS) vs Ontario	1.02 (0.87 – 1.19)	1.02 (0.87 – 1.20)
Quebec vs Ontario	0.97 (0.85 – 1.01)	0.97 (0.85 – 1.11)
The Prairies (Manitoba, Alberta, Saskatchewan) vs Ontario	0.97 (0.86 – 1.11)	0.98 (0.86 – 1.12)
The Territories vs Ontario	1.00 (0.85 – 1.16)	0.98 (0.85 – 1.14)
British Columbia vs Ontario	1.01 (0.76 – 1.33)	1.00 (0.75 – 1.34)
Marital status		
Widowed/Separated/divorced/Single vs Married/common-law	0.94 (0.86 – 1.03)	1.07 (0.96 – 1.18)
Knowledge of official language		
Neither English nor French vs English/French	1.59 (0.86 – 2.95))	1.58 (0.83 – 3.00)
Insurance-prescription medications-all/part		
No vs Yes	0.95 (0.84 – 1.07)	0.95 (0.84 – 1.08)
Personal income		
$40k to $79k vs Less than $39k	0.96 (0.86 – 1.07)	0.96 (0.86 – 1.08)
$80k+ vs Less than $39k	0.99 (0.86 – 1.13)	1.00 (0.86 – 1.16)
Education level		
Less than Secondary vs Post-Secondary	0.93 (0.83 – 1.05)	0.90 (0.78 – 1.03)
Secondary vs Post- Secondary	0.93 (0.82 – 1.04)	1.08 (0.76 – 1.56)
Perceived health status		
Excellent vs Very Good	0.99 (0.86 – 1.11)	0.98 (0.86 – 1.11)
Good vs Very Good	1.00 (0.89 – 1.12)	1.00 (0.90 – 1.12)
Fair vs Very Good	0.95 (0.81 – 1.12)	0.94 (0.80 – 1.11)
Poor vs Very Good	1.06 (0.84 – 1.33)	1.05 (0.83 – 1.33)

Table A.8. Unadjusted (univariable) and adjusted (multivariable) odds ratios and 95% CI for same/next day appointment for immediate care for minor problem

Characteristics	Undajused Odds Estimates	Adjusted Odds Estimates
***N* = 222,949**	**(95% CI)**	**(95% CI)**
Age group (Years)		
18 to 34 vs 35 to 54	1.01 (0.96 – 1.07)	1.00 (0.96 – 1.06)
55 to 74 vs 35 to 54	0.99 (0.94 – 1.03)	0.99 (0.95 – 1.04)
75+ vs 35 to 54	1.02 (0.96 – 1.09)	1.02 (0.96 – 1.09)
Sex		
Male vs Female	1.06 (1.02 – 1.10)	1.06 (1.02 – 1.09)
Racialization		
Non-White vs White	1.04 (0.98 – 1.10)	1.04 (0.98 – 1.10)
Sexual orientation		
Gay/Bisexual vs Heterosexual	1.06 (0.95 – 1.18)	1.07 (0.96 – 1.19)
Region of residence		
Atlantic Canada (NB, Newfoundland, PEI, NS) vs Ontario	1.05 (0.99 – 1.12)	1.06 (1.00 – 1.12)
Quebec vs Ontario	1.00 (0.96 – 1.05)	1.00 (0.96 – 1.05)
The Prairies (Manitoba, Alberta, Saskatchewan) vs Ontario	1.05 (1.00 – 1.11)	1.05 (1.00 – 1.10)
The Territories vs Ontario	1.09 (1.03 – 1.16)	1.09 (1.03 – 1.16)
British Columbia vs Ontario	0.96 (0.86 – 1.08)	0.95 (0.84 – 1.07)
Marital status		
Widowed/Separated/divorced/Single vs Married/common-law	1.01 (0.97 – 1.04)	1.00 (0.97 – 1.04)
Knowledge of official language		
Neither English nor French vs English/French	0.96 (0.75 – 1.23)	0.91 (0.71 – 1.17)
Insurance-prescription medications-all/part		
No vs Yes	1.02 (0.96 – 1.09)	1.00 (0.94 – 1.07)
Personal income		
$40k to $79k vs Less than $39k	0.96 (0.92 – 1.00)	0.96 (0.91 – 1.00)
$80k+ vs Less than $39k	1.04 (0.99 – 1.10)	1.04 (0.98 – 1.10)
Education level		
Less than Secondary vs Post-Secondary	1.00 (0.96 – 1.04)	1.03 (0.97 – 1.09)
Secondary vs Post- Secondary	1.00 (0.96 – 1.05)	1.00 (0.96 – 1.05)
Perceived health status		
Excellent vs Very Good	1.04 (1.00 – 1.09)	1.04 (0.99 – 1.09)
Good vs Very Good	1.05 (1.01 – 1.10)	1.05 (1.00 – 1.09)
Fair vs Very Good	1.03 (0.96 – 1.09)	1.01 (0.95 – 1.07)
Poor vs Very Good	0.98 (0.89 – 1.07)	0.96 (0.87 – 1.06)

Table A.9. Unadjusted (univariable) and adjusted (multivariable) odds ratios and 95% CI for "used a hospital emergency room in past 12 months"

Characteristics	Undajused Odds Estimates	Adjusted Odds Estimates
***N* = 222,949**	**(95% CI)**	**(95% CI)**
Age group (Years)		
18 to 34 vs 35 to 54	1.04 (0.95 -1.13)	1.03 (0.94 – 1.13)
55 to 74 vs 35 to 54	1.00 (0.93 -1.08)	0.99 (0.94 – 1.13)
75+ vs 35 to 54	1.04 (0.94-1.16)	1.02 (0.91 – 1.15)
Sex		
Male vs Female	0.98 (0.92 -1.03)	0.98 (0.92 – 1.05)
Racialization		
Non-White vs White	0.98 (0.89 -1.08)	0.99 (0.90 – 1.09)
Sexual orientation		
Gay/Bisexual vs Heterosexual	0.94 (0.78 -1.13)	0.93 (0.77 – 1.12)
Region of residence		
Atlantic Canada (NB, Newfoundland, PEI, NS) vs Ontario	1.03 (0.93 -1.14)	1.01 (0.92 – 1.13)
Quebec vs Ontario	0.99 (0.91 -1.07)	0.98 (0.90 – 1.07)
The Prairies (Manitoba, Alberta, Saskatchewan) vs Ontario	1.01 (0.92 -1.09)	1.00 (0.92 – 1.09)
The Territories vs Ontario	0.99 (0.89 -1.09)	0.90 (0.90 – 1.09)
British Columbia vs Ontario	1.10 (0.91 -1.32)	1.09 (0.90 – 1.33)
Marital status		
Widowed/Separated/divorced/Single vs Married/common-law	1.00 (0.94 -1.06)	0.98 (0.92 – 1.05)
Knowledge of official language		
Neither English nor French vs English/French	0.82 (0.53 -1.29)	0.82 (0.52 – 1.29)
Insurance-prescription medications-all/part		
No vs Yes	1.03 (0.96 -1.12)	1.03 (0.95- 1.11)
Personal income		
$40k to $79k vs Less than $39k	0.98 (0.91-1.05)	0.98 (0.91 – 1.07)
$80k+ vs Less than $39k	0.93 (0.85 -1.02)	0.95 (0.86 – 1.05)
Education level		
Less than Secondary vs Post-Secondary	1.06 (0.99 -1.15)	1.06 (0.97 – 1.17)
Secondary vs Post- Secondary	1.08 (1.00 –1.17)	1.07 (1.00 – 1.16)
Perceived health status		
Excellent vs Very Good	0.97 (0.89 -1.05)	0.97 (0.90 – 1.05)
Good vs Very Good	0.98 (0.91 -1.05)	0.97 (0.90 – 1.05)
Fair vs Very Good	0.98 (0.88 -1.09)	0.96 (0.86 – 1.08)
Poor vs Very Good	0.90 (0.78 -1.06)	0.89 (0.76 – 1.04)

Table A.10. Unadjusted (univariable) and adjusted (multivariable) odds ratios and 95% CI for "for consulted with nurse in past 12 months"

Characteristics	Undajused Odds Estimates	Adjusted Odds Estimates
***N* = 222,949**	**(95% CI)**	**(95% CI)**
Age group (Years)		
18 to 34 vs 35 to 54	1.04 (0.94 -1.15)	1.06 (0.95 -1.17)
55 to 74 vs 35 to 54	1.02 (0.93 -1.11)	1.01 (0.92 -1.10)
75+ vs 35 to 54	1.11 (0.99 -1.24) -	1.08 (0.95 -1.22)
Sex		
Male vs Female	0.67 (0.63 -0.72)	0.68 (0.63 - 0.73)
Racialization		
Non-White vs White	0.87 (0.77 -0.98)	0.87 (0.77 - 0.98)
Sexual orientation		
Gay/Bisexual vs Heterosexual	1.12 (0.92 - 1.36)	1.12 (0.92 - 1.37)
Region of residence		
Atlantic Canada (NB, Newfoundland, PEI, NS) vs Ontario	1.08 (1.00 - 1.21)	1.06 (0.95 - 1.18)
Quebec vs Ontario	0.98 (0.89 - 1.08)	0.98 (0.89 - 1.08)
The Prairies (Manitoba, Alberta, Saskatchewan) vs Ontario	1.01 (0.92 - 1.11)	1.02 (0.93 -1.12)
The Territories vs Ontario	0.96 (0.85 - 1.08)	0.97 (0.86 -1.09)
British Columbia vs Ontario	1.07 (0.88 - 1.30)	1.14 (0.94 -1.40)
Marital status		
Widowed/Separated/divorced/Single vs Married/common-law	1.02 (0.96 - 1.10)	0.94 (0.88 - 1.01)
Knowledge of official language		
Neither English nor French vs English/French	1.16 (0.72 - 1.87)	1.23 (0.76 - 2.01)
Insurance-prescription medications-all/part		
No vs Yes	1.00 (0.91 - 1.09)	1.02 (0.93 - 1.12)
Personal income		
$40k to $79k vs Less than $39k	0.94 (0.87 - 1.03)	0.99 (0.91 - 1.09)
$80k+ vs Less than $39k	0.86 (0.77 - 0.95)	0.94 (0.83 - 1.05)
Education Level		
Less than Secondary vs Post-Secondary	0.95 (0.88 - 1.04)	0.93 (0.83 - 1.03)
Secondary vs Post- Secondary	0.93 (0.86 - 1.01)	0.92 (0.85 - 1.00)
Perceived health status		
Excellent vs Very Good	1.01 (0.92 - 1.12)	1.02 (0.93 - 1.11)
Good vs Very Good	1.01 (0.93 - 1.10)	1.02 (0.94 - 1.11)
Fair vs Very Good	1.05 (0.94 - 1.18)	1.06 (0.94 - 1.20)
Poor vs Very Good	1.17 (0.98 - 1.39)	1.20 (0.99 - 1.43)

Table A.11. Unadjusted (univariable) and adjusted (multivariable) odds ratios and 95% CI for "consulted with a family doctor or general practitioner past 12 months"

Characteristics	Undajused Odds Estimates	Adjusted Odds Estimates
***N* = 222,949**	**(95% CI)**	**(95% CI)**
Age group (Years)		
18 to 34 vs 35 to 54	0.99 (0.92 - 1.06)	1.00 (0.93 - 1.07)
55 to 74 vs 35 to 54	0.97 (0.91 - 1.03)	0.97 (0.91 - 1.03)
75+ vs 35 to 54	0.99 (0.91 - 1.08)	0.96 (0.87 - 1.05)
Sex		
Male vs Female	0.58 (0.56 - 0.61)	0.58 (0.55 - 0.61)
Racialization		
Non-White vs White	0.97 (0.90 -1.05)	0.95 (0.88 - 1.03)
Sexual orientation		
Gay/Bisexual vs Heterosexual	0.94 (0.81 -1.09)	0.92 (0.80 - 1.07)
Region of residence		
Atlantic Canada (NB, Newfoundland, PEI, NS) vs Ontario	1.00 (0.92 - 1.09)	0.99 (0.91 - 1.08)
Quebec vs Ontario	0.92 (0.86 - 0.98)	0.93 (0.86 - 0.99)
The Prairies (Manitoba, Alberta, Saskatchewan) vs Ontario	0.96 (0.90 - 1.03)	0.97 (0.91 - 1.04)
The Territories vs Ontario	0.96 (0.88 - 1.04)	0.96 (0.89 - 1.04)
British Columbia vs Ontario	0.99 (0.84 - 1.17)	1.03 (0.87 - 1.23)
Marital status		
Widowed/Separated/divorced/Single vs Married/common-law	0.98 (0.93 - 1.03)	0.98 (0.93 - 1.04)
Knowledge of official language		
Neither English nor French vs English/French	1.20 (0.88 - 1.63)	1.02 (0.95 - 1.09)
Insurance-prescription medications-all/part		
No vs Yes	1.00 (0.94 -1.06)	1.02 (0.95 - 1.09)
Personal income		
$40k to $79k vs Less than $39k	0.94 (0.75 - 0.88)	1.01 (0.95 - 1.07)
$80k+ vs Less than $39k	0.88 (0.81 - 0.94)	0.98 (0.90 - 1.06)
Education level		
Less than Secondary vs Post-Secondary	0.97 (0.91 - 1.02)	0.92 (0.86 - 1.00)
Secondary vs Post- Secondary	0.98 (0.92 - 1.04)	0.98 (0.92 - 1.04)
Perceived health status		
Excellent vs Very Good	0.98 (0.92 - 1.05)	0.98 (0.92 - 1.04)
Good vs Very Good	0.99 (0.94 - 1.05)	1.01 (0.95 - 1.07)
Fair vs Very Good	0.99 (0.91 - 1.08)	1.01 (0.92 - 1.11)
Poor vs Very Good	1.01 (0.89 - 1.15)	1.04 (0.91 - 1.19)

Appendix B

Table B.1. Unadjusted (univariable) and adjusted (multivariable) odds ratios and 95% CI for "no regular provider because of no need"

Characteristics	Undajused Odds Estimates	Adjusted Odds Estimates
***N* = 222,949**	**(95% CI)**	**(95% CI)**
Age group (Years)		
18 to 34 vs 35 to 54	0.93 (0.83 - 1.04)	0.94 (0.83 - 1.06)
55 to 74 vs 35 to 54	0.98 (0.88 - 1.08)	0.97 (0.87 - 1.07)
75+ vs 35 to 54	0.86 (0.76 - 0.97)	0.85 (0.74 - 1.00)
Racialization		
Non-White vs White	0.92 (0.82 - 1.04)	0.93 (0.82 - 1.05)
Sexual orientation		
Gay/Bisexual vs Heterosexual	1.12 (0.89 - 1.42)	1.13 (0.89 - 1.43)
Region of residence		
Atlantic Canada (NB, Newfoundland, PEI, NS) vs Ontario	0.97 (0.84 - 1.11)	0.96 (0.84 - 1.10)
Quebec vs Ontario	1.08 (0.97 - 1.21)	1.07 (0.96 - 1.19)
The Prairies (Manitoba, Alberta, Saskatchewan) vs Ontario	1.05 (0.95 - 1.17)	1.04 (0.94 - 1.16)
The Territories vs Ontario	0.96 (0.85 - 1.08)	0.97 (0.86 - 1.10)
British Columbia vs Ontario	0.93 (0.73 - 1.18)	0.94 (0.73 - 1.22)
Marital status		
Widowed/Separated/divorced/Single vs Married/common-law	1.01 (0.94 - 1.09)	1.00 (0.92 - 1.09)
Knowledge of official language		
Neither English nor French vs English/French	0.87 (0.56 - 1.35)	0.94 (0.60 - 1.48)
Insurance-prescription medications-all/part		
No vs Yes	0.87 (0.76 - 0.98)	0.89 (0.78 - 1.01)
Personal income		
$40k to $79k vs Less than $39k	1.10 (1.00 - 1.21)	1.08 (0.98 - 1.19)
$80k+ vs Less than $39k	1.05 (0.93 - 1.18)	1.02 (0.90 - 1.17)
Education level		
Less than Secondary vs Post-Secondary	1.07 (0.97 - 1.17)	1.08 (0.96 - 1.21)
Secondary vs Post- Secondary	0.99 (0.90 - 1.09)	1.01 (0.92 - 1.12)
Perceived health status		
Excellent vs Very Good	1.08 (0.97 - 1.19)	1.07 (0.97 - 1.19)
Good vs Very Good	0.96 (0.87 - 1.05)	0.96 (0.88 - 1.06)
Fair vs Very Good	0.91 (0.79 - 1.04)	0.93 (0.80 - 1.08)
Poor vs Very Good	1.28 (1.01 - 1.63)	1.32 (1.03 - 1.69)

Table B.2. Unadjusted (univariable) and adjusted (multivariable) odds ratios and 95% CI for "has a usual place for immediate care for minor problem"

Characteristics	Undajused Odds Estimates	Adjusted Odds Estimates
***N* = 222,949**	**(95% CI)**	**(95% CI)**
Age group (Years)		
18 to 34 vs 35 to 54	1.04 (0.97 - 1.12)	1.03 (0.96 - 1.11)
55 to 74 vs 35 to 54	1.06 (1.01 - 1.13)	1.05 (0.99 - 1.12)
75+ vs 35 to 54	1.08 (0.98 - 1.18)	1.06 (0.97 - 1.17)
Racialization		
Non-White vs White	0.99 (0.92 - 1.07)	1.01 (0.88 - 1.16)
Sexual orientation		
Gay/Bisexual vs Heterosexual	1.01 (0.87 - 1.16)	1.01 (0.88 - 1.16)
Region of residence		
Atlantic Canada (NB, Newfoundland, PEI, NS) vs Ontario	1.01 (0.93 - 1.10)	1.00 (0.92 - 1.09)
Quebec vs Ontario	1.01 (0.95 - 1.08)	1.01 (0.94 - 1.08)
The Prairies (Manitoba, Alberta, Saskatchewan) vs Ontario	1.04 (0.97 - 1.11)	1.03 (0.96 - 1.11)
The Territories vs Ontario	1.11 (1.02 - 1.20)	1.11 (1.02 - 1.20)
British Columbia vs Ontario	1.10 (0.92 - 1.31)	1.07 (0.89 - 1.28)
Marital status		
Widowed/Separated/divorced/Single vs Married/common-law	1.01 (0.96 - 1.06)	1.03 (0.97 - 1.10)
Knowledge of official language		
Neither English nor French vs English/French	0.69 (0.48 - 0.99)	0.65 (0.45 - 0.94)
Insurance-prescription medications-all/part		
No vs Yes	1.02 (0.94 - 1.11)	1.01 (0.93 - 1.10)
Personal Income		
$40k to $79k vs Less than $39k	0.97 (0.92 - 1.03)	0.99 (0.93 - 1.05)
$80k+ vs Less than $39k	0.96 (0.89 - 1.04)	0.99 (0.91 - 1.08)
Education level		
Less than Secondary vs Post-Secondary	1.11 (1.04 - 1.18)	1.09 (1.01 - 1.18)
Secondary vs Post- Secondary	1.06 (1.00 - 1.13)	1.05 (0.99 - 1.12)
Perceived health status		
Excellent vs Very Good	1.03 (0.97 - 1.10)	0.97 (0.91 - 1.03)
Good vs Very Good	1.03 (0.97 - 1.03)	1.03 (0.97 - 1.09)
Fair vs Very Good	0.98 (0.89 - 1.07)	0.96 (0.88 - 1.05)
Poor vs Very Good	0.99 (0.88 - 1.13)	0.98 (0.86 - 1.11)

Table B.3. Unadjusted (univariable) and adjusted (multivariable) odds ratios and 95% CI for "walk-in clinic/ER for usual place for immediate care for minor problem"

Characteristics	Undajused Odds Estimates	Adjusted Odds Estimates
***N* = 222,949**	**(95% CI)**	**(95% CI)**
Age group (Years)		
18 to 34 vs 35 to 54	1.00 (0.96 - 1.05)	1.00 (0.95 - 1.05)
55 to 74 vs 35 to 54	1.01 (0.97 - 1.05)	1.01 (0.96 - 1.05)
75+ vs 35 to 54	1.03 (0.97 - 1.09)	1.02 (0.96 - 1.09)
Racialization		
Non-White vs White	0.95 (0.86 - 1.06)	0.97 (0.92 - 1.02)
Sexual orientation		
Gay/Bisexual vs Heterosexual	0.95 (0.86 – 1.06)	0.95 (0.85 - 1.06)
Region of residence		
Atlantic Canada (NB, Newfoundland, PEI, NS) vs Ontario	1.01 (0.94 - 1.06)	1.00 (0.94 - 1.06)
Quebec vs Ontario	0.97 (0.93 - 1.02)	0.97 (0.93 - 1.02)
The Prairies (Manitoba, Alberta, Saskatchewan) vs Ontario	1.03 (0.98 - 1.08)	1.02 (0.97 - 1.07)
The Territories vs Ontario	1.05 (0.99 - 1.11)	1.05 (1.00 - 1.11)
British Columbia vs Ontario	1.03 (0.92 -1.16)	1.02 (0.90 - 1.15)
Marital status		
Widowed/Separated/divorced/Single vs Married/common-law	1.02 (0.98 - 1.05)	1.01 (0.97 - 1.05)
Knowledge of official language		
Neither English nor French vs English/French	0.96 (0.76 - 1.22)	0.97 (0.76 - 1.22)
Insurance-prescription medications-all/part		
No vs Yes	0.93 (0.87 - 0.98)	0.92 (0.86 - 0.98)
Personal income		
$40k to $79k vs Less than $39k	0.98 (0.94 - 1.02)	0.98 (0.94 - 1.02)
$80k+ vs Less than $39k	0.99 (0.94 - 1.04)	0.98 (0.93 - 1.04)
Education level		
Less than Secondary vs Post-Secondary	1.02 (0.97 - 1.06)	0.98 (0.93 - 1.03)
Secondary vs Post- Secondary	1.05 (1.01 - 1.10)	1.05 (1.00 - 1.09)
Perceived health status		
Excellent vs Very Good	0.99 (0.95 - 1.04)	0.99 (0.95 - 1.04)
Good vs Very Good	1.01 (0.97 - 1.05)	1.01 (0.97 - 1.05)
Fair vs Very Good	1.03 (0.97 - 1.09)	1.02 (0.96 - 1.09)
Poor vs Very Good	1.00 (0.90 - 1.08)	0.98 (0.89 - 1.07)

Table B.4. Unadjusted (univariable) and adjusted (multivariable) odds ratios and 95% CI for "Same/Next Day Appointment for Minor Problem"

Characteristics ***N* = 222,949**	**Undajused Odds Estimates** **(95% CI)**	**Adjusted Odds Estimates** **(95% CI)**
Age group (Years)		
18 to 34 vs 35 to 54	1.01 (0.96 - 1.06)	1.01 (0.96 - 1.06)
55 to 74 vs 35 to 54	0.99 (0.94 - 1.03)	0.99 (0.95 - 1.04)
75+ vs 35 to 54	1.03 (0.97 - 1.09)	1.02 (0.96 - 1.06)
Racialization		
Non-White vs White	1.04 (0.98 - 1.09)	1.04 (0.98 - 1.10)
Sexual orientation		
Gay/Bisexual vs Heterosexual	1.06 (0.96 - 1.18)	1.07 (0.96 - 1.19)
Region of residence		
Atlantic Canada (NB, Newfoundland, PEI, NS) vs Ontario	1.06 (1.00 - 1.12)	1.06 (1.00 - 1.12)
Quebec vs Ontario	1.00 (0.96 - 1.05)	1.00 (0.96 - 1.05)
The Prairies (Manitoba, Alberta, Saskatchewan) vs Ontario	1.05 (1.00 - 1.11)	1.05 (1.00 -1.10)
The Territories vs Ontario	1.09 (1.03 - 1.16)	1.09 (1.03 - 1.16)
British Columbia vs Ontario	0.96 (0.85 - 1.08)	0.95 (0.84 - 1.07)
Marital status		
Widowed/Separated/divorced/Single vs Married/common-law	1.00 (0.96 - 1.03)	1.00 (0.97 - 1.04)
Knowledge of official language		
Neither English nor French vs English/French	0.96 (0.76 -1.23)	0.91 (0.71 - 1.17)
Insurance-prescription medications-all/part		
No vs Yes	1.02 (0.96 - 1.08)	1.00 (0.94 - 1.09)
Personal income		
$40k to $79k vs Less than $39k	0.95 (0.91 - 0.99)	0.96 (0.91 - 1.00)
$80k+ vs Less than $39k	1.03 (0.97 - 1.08)	1.04 (0.98 - 1.10)
Education level		
Less than Secondary vs Post-Secondary	1.00 (0.95 - 1.04)	1.03 (0.98 - 1.09)
Secondary vs Post- Secondary	1.00 (0.96 - 1.05)	1.00 (0.96 - 1.05)
Perceived health status		
Excellent vs Very Good	1.04 (0.99 - 1.09)	1.04 (0.99 - 1.09)
Good vs Very Good	1.05 (1.01 - 1.10)	1.05 (1.00 - 1.09)
Fair vs Very Good	1.03 (0.96 - 1.09)	1.01 (0.95 - 1.08)
Poor vs Very Good	0.98 (0.98 - 1.08)	0.96 (0.87 - 1.06)

Table B.5. Unadjusted (univariable) and adjusted (multivariable) odds ratios and 95% CI for "Consulted with a Family Doctor or General Practictioner"

Characteristics	Undajused Odds Estimates	Adjusted Odds Estimates
***N* = 222,949**	**(95% CI)**	**(95% CI)**
Age group (Years)		
18 to 34 vs 35 to 54	0.99 (0.93 - 1.06)	1.00 (0.93 - 1.08)
55 to 74 vs 35 to 54	0.97 (0.91 - 1.03)	0.97 (0.91 - 1.03)
75+ vs 35 to 54	0.95 (0.87 - 1.04)	0.96 (0.87 - 1.05)
Racialization		
Non-White vs White	0.98 (0.91 - 1.06)	0.95 (0.88 - 1.03)
Sexual Orientation		
Gay/Bisexual vs Heterosexual	0.93 (0.80 - 1.08)	0.92 (0.80 - 1.07)
Region of residence		
Atlantic Canada (NB, Newfoundland, PEI, NS) vs Ontario	0.99 (0.91 - 1.08)	0.99 (0.91 - 1.08)
Quebec vs Ontario	0.92 (0.86 - 0.99)	0.93 (0.86 - 0.99)
The Prairies (Manitoba, Alberta, Saskatchewan) vs Ontario	0.97 (0.91 - 1.04)	0.97 (0.91 - 1.04)
The Territories vs Ontario	0.96 (0.89 - 1.04)	0.96 (0.87 - 1.94)
British Columbia vs Ontario	1.04 (0.86 - 1.19)	1.04 (0.87 - 1.23)
Marital status		
Widowed/Separated/divorced/Single vs Married/common-law	1.00 (0.95 - 1.04)	0.98 (0.93 - 1.04)
Knowledge of official language		
Neither English nor French vs English/French	1.14 (0.83 - 1.56)	1.18 (0.85 - 1.62)
Insurance-prescription medications-all/part		
No vs Yes	1.01 (0.95 - 1.08)	1.02 (0.95 - 1.09)
Personal income		
$40k to $79k vs Less than $39k	1.02 (0.96 - 1.08)	1.01 (0.95 - 1.07)
$80k+ vs Less than $39k	1.00 (0.93 - 1.08)	0.98 (0.90 - 1.06)
Education Level		
Less than Secondary vs Post-Secondary	0.97 (0.91 - 1.03)	0.92 (0.86 - 1.00)
Secondary vs Post- Secondary	0.98 (0.92 - 1.04)	0.98 (0.92 - 1.04)
Perceived health status		
Excellent vs Very Good	0.98 (0.92 - 1.05)	0.98 (0.92 - 1.04)
Good vs Very Good	1.00 (0.94 - 1.06)	1.01 (0.95 - 1.07)
Fair vs Very Good	0.99 (0.90 - 1.08)	1.01 (0.92 - 1.11)
Poor vs Very Good	1.02 (0.90 - 1.16)	1.05 (0.92 - 1.19)