

2016

# Examining Mental Health Status and Mental Health Service Utilization by Visible Minority Immigrants in Canada: Adopting a Social Determinants of Health and Intersectionality Approach

Ip, Conita Kit Ching

---

Ip, C. K. (2016). Examining Mental Health Status and Mental Health Service Utilization by Visible Minority Immigrants in Canada: Adopting a Social Determinants of Health and Intersectionality Approach (Doctoral thesis, University of Calgary, Calgary, Canada). Retrieved from <https://prism.ucalgary.ca>. doi:10.11575/PRISM/26020

<http://hdl.handle.net/11023/3413>

*Downloaded from PRISM Repository, University of Calgary*

UNIVERSITY OF CALGARY

Examining Mental Health Status and Mental Health Service Utilization by Visible Minority  
Immigrants in Canada: Adopting a Social Determinants of Health and Intersectionality Approach

by

Conita Kit Ching Ip

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES  
IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE  
DEGREE OF DOCTOR OF PHILOSOPHY

GRADUATE PROGRAM IN SOCIAL WORK

CALGARY, ALBERTA

OCTOBER, 2016

© Conita Kit Ching Ip 2016

## **Abstract**

The number of visible minority immigrants to Canada is increasing rapidly. However, studies on mental health experiences associated with migration-related challenges are limited. Drawing on social determinants of health and intersectionality frameworks, this study investigated the relationship between social contextual factors and mental health outcomes (self-perceived mental health and life stress, and diagnosed mood and anxiety disorders) and mental health service utilization among visible minority immigrant adults in Canada. Data were drawn from the 2009-2010 Canadian Community Health Survey, which provided a sample of 5,870 visible minority immigrant adults aged 18 to 64 from 13 Canadian provinces and territories and a comparison group of 68,932 Canadian-born white adults. Multivariate logistic regression analyses were used to determine the relationship between socio-demographic factors and mental health outcomes and service use.

Analysis results revealed no significant differences in self-perceived mental health between visible minority immigrant and Canadian-born white adults. Within-group multivariate logistic regression modeling revealed that male gender, employed status, mid- or high-range household income, and strong sense of community belonging were recurring protective factors against poor mental health, while longer-term immigrant status was a recurring risk factor for visible minority immigrants. Analysis of interactions between correlates revealed that when compared to all other intersecting immigrant and Canadian-born social identities, middle-aged visible minority immigrant adults and visible minority immigrant adults with a mid-range household income were the combined social identities associated with poor perceived mental health, high perceived life stress, and diagnosed mood disorders. Visible minority immigrants with poor perceived mental health and high perceived life stress were less likely than Canadian-

born adults to report using mental health services, but those with diagnosed mood or anxiety disorders were as likely as Canadian-born adults to have used services.

Despite some limitations, this study contributes to the current body of literature on ethno-cultural immigrant mental health by examining multiple mental health outcomes and help-seeking patterns using a social determinant of health perspective in the context of intersectionality, examining the combined effects of multiple social identities. The study results also challenge conventional assumptions about the “healthy immigrant effect” and “transitional effect” in visible minority immigrant’s mental health, contributing to a more complex understanding of this important issue.

## **Acknowledgements**

The completion of this thesis would not have been possible without the invaluable input and unfailing support from my thesis supervisory committee and various parties. First, I would like to offer my heartfelt gratitude to Dr. John Graham, my interim supervisor, for his insightful input on my thesis topic as well as his help in facilitating the transition to my current thesis supervisor, Dr. Janki Shankar. I am deeply grateful to Dr. Shankar for accepting me as her doctoral student, and for her genuine interest in my research into immigrant mental health, her unceasing patience in reviewing my thesis drafts, and her scholarly advice and suggestions throughout the writing process. I would also like to extend my gratitude to the members of my thesis committee, Dr. Christine Walsh and Dr. Yeonjung Lee, for their valuable feedback on each and every thesis chapter. I would not have been able to reach the end of this thesis process without the supervisory team's tireless guidance and mentorship.

My sincere thanks go to the members of the examining committee, Dr. Jeannette Waegemakers Schiff (neutral chair), Dr. Tak Fung, Dr. Lloyd Wong, Dr. Shibo Guo, and Dr. Purnima George, for their thought-provoking interrogations and expert feedback on my entire proposal and dissertation, particularly with respect to immigrant health and mental health theories, research methodology, and related statistical analyses.

I would also like to thank a pool of comrades and faculty staff who have helped me during my entire academic journey: Dr. Helen Lee for her statistical advice, Dr. Daniel Lai for his general research advice, Marion Jaffray and Sabrina Notarangelo for their help with program logistics, and Caroline Thomson, Gabrielle Daoust, Hongmei Tong, and Lun Li for their kind assistance, as well as Dr. Timothy Leung, Monica Yau, Rev. Dr. Jason Yeung, Alison Yeung, Rev. Dr. Timothy Fong, Henrietta Lau, Rev. Alan Lam, Belinda Wong, Debby Lo, Tianni Song,

Sueann Leung, Kit-tong Au, Raymond Sham, Kam-hung Lee, Yee-wan Lau, Dr. Annissa Lui, Tracy Tong, Sandy Lee, Vanessa Lam, Stanley Kwok, Zenobia Ng, Pierre Chua, Louise Ng, and Ronald Au for their loving support and prayers. Special thanks are dedicated to Dr. Theresa Trotter and Dr. Justin Fong, who have provided excellent professional healthcare during this period, enabling me to fulfill my dream.

I would like to give my deepest gratitude to my beloved husband Alan Wong for his ceaseless support. Without his love and sacrifice, I could not have completed this dissertation. My heartfelt gratitude is also extended to my deceased father Wai-kuen Ip, mother Kam-ying Leung, and my siblings Ling, Johnny, Wilfred, Anita, and Cynthia for their far but near love and inspiration throughout my life.

Last but not least, I am truly thankful to God, who is the very source of my strength in confronting all obstacles, big and small, in my life journey.

## Table of Contents

ABSTRACT .....	II
ACKNOWLEDGEMENTS.....	IV
TABLE OF CONTENTS .....	VI
LIST OF TABLES.....	IX
LIST OF FIGURES .....	XII
CHAPTER ONE: INTRODUCTION .....	1
1.1 Context for Researching Visible Minority Immigrant Mental Health.....	1
1.1.1 Snapshot of international migration .....	1
1.1.2 Snapshot of Canada’s early migration history .....	2
1.1.3 Post-1950 changes in Canadian immigration policies and composition of immigration population.....	3
1.1.4 Canada’s current immigration situation .....	5
1.2 Rationale and Purpose of the Current Study.....	7
1.3 Significance of the Current Study.....	11
1.4 Definition of Terms.....	11
1.5 Structure of the Thesis .....	12
CHAPTER TWO: REVIEW OF LITERATURE .....	14
2.1 Are Immigrants Sicker or Healthier? A “Healthy Immigrant Effect” Perspective.....	14
2.1.1. Perspectives on immigrant health .....	14
2.1.2 Researching immigrant mental health and the “healthy immigrant effect” .....	17
2.2 Help-Seeking and Mental Health Service Utilization by Visible Minority Immigrants in Canada.....	26
2.2.1 Canada’s universal health care system and health and mental health care needs .....	27
2.2.2 Help-seeking patterns for mental health among visible minority immigrants in Canada .....	29
2.2.3 Using Andersen and Newman’s model to understand mental health service use by visible minority immigrants .....	34
2.3 Social Determinants of Health Perspective.....	38
2.3.1 Background to social determinants of health .....	38
2.3.2 Identifying social determinants of health .....	39
2.3.3 Limitations of the social determinants of health perspective.....	49
2.4 Intersectionality: A Transformative Research Paradigm for Framing Social Determinants of Immigrant Mental Health .....	50

2.4.1 An intersectional approach to social determinants of health: Key considerations.....	52
2.4.2 Applying intersectionality to population health and mental health research .....	56
2.4.3 Challenges of using intersectionality and social determinants of health approach in health and mental health research .....	60
CHAPTER THREE: CONCEPTUAL FRAMEWORK.....	63
3.1 Developing a Conceptual Approach .....	63
CHAPTER FOUR: METHODOLOGY .....	68
4.1 Research Questions and Hypotheses .....	68
4.2 Research Design: Quantitative Cross-Sectional Survey Design as Method of Inquiry .....	69
4.3 Data Source, Data Collection and Sampling.....	71
4.3.1 2009-2010 Canadian Community Health Survey .....	71
4.3.2 Target population .....	73
4.3.3 Final sample for analysis.....	74
4.4 Conceptualization and Operationalization of Variables .....	74
4.4.1 Mental health status and mental health service utilization as dependent variables .....	75
4.4.2 Demographic and socio-economic factors as independent variables.....	77
4.5 Data Analysis .....	79
4.5.1 Methods of analysis.....	79
CHAPTER FIVE: RESULTS.....	83
5.1 Study Sample Characteristics .....	83
5.2 Research Question 1: Differences in Mental Health Status and Service Utilization.....	84
5.2.1 Estimated prevalence rates of four mental health outcomes.....	85
5.2.2 Differences in mental health outcomes by socio-demographic characteristics.....	85
5.2.3 Estimated prevalence rates of mental health service use .....	89
5.2.4 Estimated prevalence rates of mental health service use by mental health status.....	90
5.2.5 Hypotheses testing.....	93
5.3 Research Question 2: Correlates of Mental Health Outcomes and Service Utilization ....	116
5.3.1 Correlates of poor self-perceived mental health .....	116
5.3.2 Correlates of high self-perceived life stress .....	117
5.3.3 Correlates of diagnosed mood disorders .....	117
5.3.4 Correlates of diagnosed anxiety disorders .....	118
5.3.5 Correlates of mental health service use.....	118
5.4 Research Question 3: Intersecting Correlates of Mental Health Outcomes and Service Utilization .....	131
5.4.1 Intersecting correlates of poor self-perceived mental health .....	131
5.4.2 Intersecting correlates of high self-perceived life stress .....	132
5.4.3 Intersecting correlates of diagnosed mood disorders .....	134
5.4.4 Intersecting correlates of diagnosed anxiety disorders .....	134
5.4.5 Intersecting correlates of mental health service use.....	135

5.5 Summary of Overall Findings.....	138
CHAPTER SIX: DISCUSSION AND CONCLUSION .....	158
6.1 Introduction.....	158
6.2 Discussion of the Findings.....	160
6.2.1 Differences in mental health outcomes, risk and protective factors, and intersecting effects .....	160
6.2.2 Differences in mental health service use, significant factors, and intersecting effects .....	168
6.3 Study Strengths and Limitations.....	173
6.3.1 Strengths of the study.....	173
6.3.2 Limitations of the study.....	175
6.4 Implications of the Study Findings .....	178
6.4.1 Implications for social work education and practice, and social and health policies..	179
6.4.2 Implications for future research .....	183
6.5 Summary of the Study .....	185
REFERENCES .....	187

## **List of Tables**

- Table 1.1. Top 10 source of landed immigrants in Canada in 2013 (CIC, 2013)
- Table 2.1. Different approaches or framework in the study of social determinants of health
- Table 5.1. Socio-demographic characteristics of visible minority immigrant and Canadian-born white respondents aged 18-64 (CCHS 2009-2010)
- Table 5.2. Estimated prevalence rates of mental health outcomes and service use for visible minority immigrant and Canadian-born white respondents aged 18-64 (CCHS 2009-2010)
- Table 5.3. Cross-group comparison of self-perceived mental health by socio-demographic characteristics
- Table 5.4. Within-group comparison of self-perceived mental health by socio-demographic characteristics
- Table 5.5. Cross-group comparison of self-perceived life stress by socio-demographic characteristics
- Table 5.6. Within-group comparison of self-perceived life stress by socio-demographic characteristics
- Table 5.7. Cross-group comparison of diagnosed mood disorders by socio-demographic characteristics
- Table 5.8. Within-group comparison of diagnosed mood disorders by socio-demographic characteristics
- Table 5.9. Cross-group comparison of diagnosed anxiety disorders by socio-demographic characteristics
- Table 5.10. Within-group comparison of diagnosed anxiety disorders by socio-demographic characteristics
- Table 5.11. Cross-group comparison of mental health service use by socio-demographic characteristics for all respondents
- Table 5.12. Cross-group comparison of mental health service use by respondents with mental health needs
- Table 5.13. Cross-group comparison of mental health service use by respondents with poor self-perceived mental health and high self-perceived life stress by socio-demographic characteristics

- Table 5.14. Within-group comparison of mental health service use by respondents with poor self-perceived mental health (MH) by socio-demographic characteristics
- Table 5.15. Within-group comparison of mental health service use by respondents with high self-perceived life stress by socio-demographic characteristics
- Table 5.16. Cross-group comparison of mental health service use by respondents with a diagnosed mood disorder and diagnosed anxiety disorder by socio-demographic characteristics
- Table 5.17. Within-group comparison of mental health service use by respondents with a diagnosed mood disorder by socio-demographic characteristics
- Table 5.18. Within-group comparison of mental health service use by respondents with a diagnosed anxiety disorder by socio-demographic characteristics
- Table 5.19. Multivariate logistic regression analyses for visible minority immigrant and Canadian-born white adults with poor self-perceived mental health
- Table 5.20. Multivariate logistic regression analyses for visible minority immigrant and Canadian-born white adults with high self-perceived life stress
- Table 5.21. Multivariate logistic regression analyses for visible minority immigrant and Canadian-born white adults with a diagnosed mood disorder
- Table 5.22. Multivariate logistic regression analyses for visible minority immigrant and Canadian-born white adults with a diagnosed anxiety disorder
- Table 5.23. Hierarchical logistic regression analysis of mental health service use by visible minority immigrant adults
- Table 5.24. Hierarchical logistic regression analysis of mental health service use by Canadian-born white adults
- Table 5.25. Binary logistic regression on self-perceived mental health (interaction analysis)
- Table 5.26. Binary logistic regression on self-perceived mental health within visible minority immigrant and Canadian-born white adults (interaction analysis)
- Table 5.27. Binary logistic regression on self-perceived life stress (interaction analysis)
- Table 5.28. Binary logistic regression on self-perceived life stress within visible minority immigrant and Canadian-born white adults (interaction analysis)
- Table 5.29. Binary logistic regression on diagnosed mood disorder (interaction analysis)

- Table 5.30. Binary logistic regression on diagnosed mood disorder within visible minority immigrant and Canadian-born white adults (interaction analysis)
- Table 5.31. Binary logistic regression on diagnosed anxiety disorder (interaction analysis)
- Table 5.32. Binary logistic regression on diagnosed anxiety disorder within visible minority immigrant and Canadian-born white adults (interaction analysis)
- Table 5.33. Binary logistic regression on mental health service use within visible minority immigrant and Canadian-born white adults (interactions with self-perceived mental health)
- Table 5.34. Binary logistic regression on mental health service use within visible minority immigrant and Canadian-born white adults (interactions with self-perceived life stress)
- Table 5.35. Binary logistic regression on mental health service use within visible minority immigrant and Canadian-born white adults (interactions with diagnosed mood disorder)
- Table 5.36. Binary logistic regression on mental health service use within visible minority immigrant and Canadian-born white adults (interactions with diagnosed anxiety disorder)

## **List of Figures**

- Figure 1. The Andersen and Newman model of health service utilization
- Figure 2. SDH Intersectionality lens for addressing health inequities.
- Figure 3. Conceptual framework for examining predictors of mental health status among visible minority immigrants and Canadian-born white adults
- Figure 4. Conceptual framework for examining predictors of mental health service use by visible minority immigrants and Canadian-born white adults
- Figure 5. Sampling procedures

## **Chapter One: Introduction**

### **1.1 Context for Researching Visible Minority Immigrant Mental Health**

#### **1.1.1 Snapshot of international migration**

Migration is a global phenomenon. The reasons for which people migrate from one country to another are vast. Some people move voluntarily seeking an improved living environment, better education and employment opportunities, better healthcare, or family reunification (Clark & Maas, 2015). Others leave their home countries involuntarily due to conditions such as war or political turmoil (Bhugra & Gupta, 2011; Chen et al., 2009; Islam, 2013). Migration does not simply involve the act of crossing a border. Rather, it is a lifelong process that impacts every aspect of the lives of those involved. International migration has increased since the beginning of the 20<sup>th</sup> century, primarily as a result of worldwide warfare and globalization, leading to an upsurge of international refugees and migrant workers (Boyd & Vickers, 2000; Beneria, Deere, & Kabeer, 2012).

Globalization has been characterized by the rapid development of transnational economic cooperation and transportation that link people around the world. Increasing globalization in the 1980s and 1990s contributed to large-scale labor flows from less “developed” (lower income) regions to higher income countries in North America, Western Europe, and Oceania (Castles, 2001). According to a report by the United Nations Department of Economic and Social Affairs and the Organization for Economic Cooperation and Development (UN DESA & OECD, 2013), there were approximately 231.5 million international migrants worldwide in 2013, with more than half (136.5 million) living in North America, Western Europe, and Oceania. Half of all migrants in the OECD regions of Africa, Asia, Europe, North America, Oceania, Latin

American, and the Caribbean were from Asia, Latin America, and the Caribbean. By 2013, a cumulative total of 53.1 million immigrants had settled in North America, with female immigrants (51.2%) slightly outnumbering their male counterparts (UN DESA & OECD, 2013).

In 2010-2011, approximately 27 million international migrants were highly educated, and almost half of all immigrants to Canada and the United States reported tertiary educational qualifications. India, China, and the Philippines accounted for one-fifth of all highly educated (tertiary level) migrants to OECD countries (UN DESA & OECD, 2013). International migration has significant social and economic effects for both home and host countries. International migrants contribute to national population growth, cultural diversity, and labour markets in their host countries. They also contribute to the economies of their home countries through financial remittances. In 2010, 267 billion US dollars were sent from the Northern Hemisphere to the South, accounting for almost two-thirds of all global remittances (International Organization for Migration, 2013).

### **1.1.2 Snapshot of Canada's early migration history**

Canada is no exception to these global migration trends. In the early 20<sup>th</sup> century, the Canadian government launched intensive recruitment campaigns to attract a labour force needed to build transcontinental railway systems and to expand industrial production. More than 2.9 million people entered Canada between 1900 and 1914, accounting for 44% of national population growth at the time (Boyd & Vickers, 2000). These early immigrants to Canada originated primarily from the United States, the United Kingdom, and other European countries, with minimal immigration from Asia and other non-European countries. This was largely influenced by the revision of the Immigration Act in 1906, based on notions of white (European) migration policy and biological race superiority (Health Canada, 2010). Migration to Canada

dropped drastically following the outbreak of the two world wars (in 1914-1918 and 1939-1945) and the Great Depression (1929-1939). After recovering from political turmoil and economic recession in the 1950s, Canada experienced a post-war immigration boom that has continued to the present day (Boyd & Vickers, 2000).

### **1.1.3 Post-1950 changes in Canadian immigration policies and composition of immigration population**

In 1952, Canada's Immigration Act was further revised to "prohibit or limit the admission of persons by reason of nationality, ethnic group, occupation, lifestyle, unsuitability with regards to Canada's climate, and perceived inability to become readily assimilated into Canadian society" (Health Canada, 2010). However, in 1962, new immigration regulations largely eliminated racial and religious discrimination from Canada's immigration policy, and an objective "points system" was introduced in 1967, with immigrants admitted on the basis of age, education, language skills, and economic contributions. Immigrants to Canada prior to the 1970s arrived primarily from European nations such as the United Kingdom, Netherlands, Germany, and Italy (Ali, 2002; Statistics Canada, 2011). More than three-quarters (78.3%) of immigrants who had entered Canada before 1971 were from European countries, whereas only 8.5%, 1.9%, and 5.4% were from Asian countries, African countries, or Caribbean and Central/South American countries, respectively (Statistics Canada, 2011).

In 1971, the Canadian government adopted a formal multiculturalism policy upholding values of equality and mutual respect with regard to race, ethnic origin, color, and religion (Health Canada, 2010). With the incorporation of humanitarian-based admission of refugees from non-European countries, immigrants arriving in Canada possessed more diverse cultural backgrounds than ever before (Boyd & Vickers, 2000). These substantial policy changes

facilitated immigration to Canada for people born outside Europe and the United States, resulting in increased immigration from Asian countries and other regions of the world in the past four decades. Between 2006 and 2011, most immigrants (56.9%) were from Asian countries, whereas only 13.7% were born in Europe. The proportion of immigrants from African countries (12.5%) and from Caribbean and Central and South American countries (12.3%) also steadily increased (Statistics Canada, 2013).

In the past decade, China has become the leading source country of immigrants to Canada, followed by India and the Philippines, which together accounted for 35.4% of all immigrants to Canada (see Table 1) (Citizenship and Immigration Canada, 2013). Seven of the top ten source countries are Asian countries (China, India, the Philippines, Pakistan, Iran, Korea, and the United Arab Emirates), accounting for 47% of all immigrants to Canada in 2013 (Citizenship and Immigration Canada [CIC], 2013). This figure does not include smaller Asian countries or other non-European countries such as African countries. It is estimated that by 2031, South Asians (Indian, Pakistani, Bangladeshi, Nepalese, Sri Lankan) will become the largest ethno-regional immigrant population in Canada increasing from about 1.3 million in 2006 to between 3.6 million and 4.1 million, while the Chinese population is estimated to increase from 1.3 million in 2006 to between 2.7 million and 3 million by 2031 (Statistics Canada, 2010). Currently, more than half of Canada's immigrant population belongs to a visible minority group. Between 2006 and 2011, 78% of immigrants to Canada were visible minorities (Statistics Canada, 2013). These figures illustrate that immigration has played an important role in shaping the Canadian population, and that the ethnic composition of Canada's population will continue to become increasingly diverse in coming years.

Table 1.1. Top 10 source countries of landed immigrants in Canada in 2013 (CIC, 2013)

Rank	Country	Number	Percentage
1	China	33,908	13.1%
2	India	30,576	11.8%
3	Philippines	27,292	10.5%
4	Pakistan	11,354	4.4%
5	United States of America	10,624	4.1%
6	Iran	10,038	3.9%
7	France	7,148	2.8%
8	United Kingdom and Colonies	5,935	2.3%
9	Korea	4,450	1.7%
10	United Arab Emirates	4,093	1.6%
Total from top 10 source countries		145,418	56.2%
All other source countries		113,535	43.8%
Total immigrants to Canada		258,953	100%

**1.1.4 Canada’s current immigration situation**

Each year, Citizenship and Immigration Canada (CIC, 2013) sets immigration targets to meet the country’s economic needs as well as family reunification and humanitarian goals. These targets are clearly outlined in Canada’s Immigration and Refugee Protection Act 2001, which serves “to permit Canada to pursue the maximum social, cultural and economic benefits of immigration,” “to enrich and strengthen the social and cultural fabric of Canadian society, while respecting the federal, bilingual and multicultural character of Canada,” “to support the development of a strong and prosperous Canadian economy, in which the benefits of immigration are shared across all regions of Canada,” and “to recognize that the refugee program is in the first instance about saving lives and offering protection to the displaced and persecuted” (Government of Canada, 2015, p. 2).

According to the last Canadian Census, a total of 6,775,765 foreign-born people were living in Canada in 2011, accounting for 20.6% of the country’s total population of 33.5 million, compared with 19.8% in 2006, and representing the highest proportion of all G8 member countries, including Japan, Italy, Russia, France, the United Kingdom, the United States, and

Germany (Statistics Canada, 2013). Canada is the second largest immigrant-receiving country in the world second to Australia, where immigrants account for 26.8% of the total population (Statistics Canada, 2013). More than 1,162,900 immigrants entered Canada between 2006 and 2011, with an average of more than 230,000 immigrants admitted annually. In 2010, 280,681 newcomers arrived in Canada, the highest admission level since 1957 (CIC, 2011). In 2015, the Government of Canada announced that planned admissions of 280,000 to 305,000 would continue in 2016 (Government of Canada, 2016).

With respect to overall immigrants' preference for resettlement residence, in 2011, the vast majority had settled in Ontario (53.3%), British Columbia (17.6%), Quebec (14.4%), and Alberta (9.5%), with 68% residing in the four largest Census Metropolitan Areas (CMAs): Toronto (37.4%), Vancouver (13.5%), Montreal (12.5%), and Calgary (4.6%) (Statistics Canada, 2013). Of the nearly 4.1 million people who identified themselves as a member of the visible minority immigrant population in 2011, more than 90% lived in Ontario, British Columbia, Quebec, and Alberta (Statistics Canada, 2013).

Currently, immigrants are admitted to Canada under a number of different immigration categories: economic class, family class, refugees, and others (CIC, 2014). The largest proportion of immigrants admitted to Canada are admitted under economic class programs, bringing capital, entrepreneurial talents, and occupational skills to contribute to meeting Canada's economic and labour market needs. Of the 258,953 new immigrants to Canada in 2013, 57.2% were economic immigrants (along with their spouses or partners and dependents), with the majority aged 25 to 44, an age cohort viewed as having the highest labour and economic productivity (CIC, 2014). Among the economic principal applicants, 37.8% reported having a

Bachelor's degree or above in 2012 (CIC, 2012) compared to 25% in the national population (Statistics Canada, 2012).

Canada's "open-arms approach" to immigration over the past 40 years has fuelled population and economic growth and enriched the country's social and cultural diversity. At the same time, this considerable shift in the ethno-cultural composition of the immigrant population from European to non-European descent has posed unprecedented challenges to Canada in their effort to integrate these new members into society due to differences in cultures, languages, values, practices, or beliefs (Srirangson, Thavorn, Moon, & Noh, 2013). A substantial body of research has presented the significant impact of these challenges on immigrants' physical and mental health (Jafari, Baharlou, & Mathias, 2010; Sinacore, Titus, & Hofman, 2013; Srirangson et al., 2013). Immigrants' mental wellbeing, in turn, has been significantly associated with their economic and social performance (Drake, Bond, Thornicroft, Knapp, & Goldman, 2012; Kessler, 2012; Simon, 2003). Given that Canada is and will likely continue to be one of the world's major immigrant-receiving countries, a comprehensive understanding of the unique mental health needs and help-seeking patterns (mental health service utilization) of visible minority immigrants is of critical importance, for the benefit of both immigrant and Canadian-born communities. The Government of Canada (2014) defined visible minority immigrants as "persons, other than Aboriginal peoples, who are non-Caucasian in race or non-white in color" (p. 2).

## **1.2 Rationale and Purpose of the Current Study**

Mental health is an integral part of human wellbeing, including for immigrant populations. It is more than the absence of mental illness (World Health Organization, 2014). As stated by WHO, there is no health without mental health. Mental health refers to "a state of wellbeing in which the individual realizes his or her own abilities, can cope with the normal

stresses of life, can work productively and fruitfully, and is able to make a contribution to his or her community” (WHO, 2014, p. 10). Mental illness, including psychotic and affective disorders, is one of the most common leading causes of disability worldwide, with long-term social and economic impacts (Drake, 2012; Kessler, 2012; Simon, 2002). In Canada, it is estimated that one in five people of the general population will experience a mental health problem or illness in their lifetime (Mental Health Commission of Canada, 2013), whereas 6.2% of the immigrants reported having a major depressive disorder (Ali, 2002). In 2011, annual direct costs attributable to mental illness (linked to healthcare, social services, and income support) reached approximately 42.3 billion dollars, and are expected to increase to some 290.9 billion dollars in 2041 (Smetanin, Stiff, Briante, Adair, Ahmad, & Khan, 2011). Moreover, the indirect cost arising from reduced productivity including absenteeism, presenteeism (the act of being present at work but not attending to work due to sickness), and turnovers due to mental health problems or illnesses was conservatively estimated to be around 6.4 billion dollars in 2011 (Smetanin et al., 2011).

While visible minority immigrants have made significant contributions to Canadian communities, in terms of enriching social and cultural diversity and contributing to population and labour market growth, they are at high risk for mental health challenges associated with migration- and acculturation-related stressors (Hansson, Tuck, Lurie, & McKenzie, 2012; Stafford, Newbold, & Ross, 2010). Migration, settlement, and integration trajectories involve a range of challenges and stressors linked to loss of social status and cultural identity, limited support networks, economic adaptations, unemployment or underemployment, differences in cultures, languages, values, beliefs, or practices, and experiences of discrimination and racism, among others (Mental Health Commission of Canada, 2009; Srirangson et al., 2013). Recent

studies have described the significant impact of these challenges on immigrants' physical and mental health (Jafari et al., 2010; Srirangson et al., 2013).

To date, a limited number of research studies have examined the mental health of visible minority immigrant adults and their patterns of mental health service utilization in Canada (Stafford, Newbold, & Ross, 2010). Some studies have reported that compared to Canadian-born populations, immigrants experience both better mental health outcomes and lower utilization of mental health services (Ali, 2002; Halli & Anchan, 2005; Smith, Matheson, Moineddin, & Glazer, 2007; Tiwari, & Wang, 2008; Xu & McDonald, 2010). However, these studies have rarely examined mental health outcomes for specific ethno-racial or visible minority immigrant adult populations, and have limited scrutiny regarding the range of social factors that interact to affect mental health differences in immigrant and Canadian-born populations.

The current study aims to address some of these gaps in existing research and to contribute to knowledge development in the field of immigrant mental health, with a specific focus on the mental health status and mental health service utilization pattern of visible minority immigrant adults. The study's key objectives are to:

- 1) Examine the differences in mental health status and mental health service utilization patterns between visible minority immigrant and Canadian-born white (Caucasian and European descent) adult populations.
- 2) Identify the social contextual factors associated with mental health status and patterns of mental health service utilization for visible minority immigrant and Canadian-born white adult populations.

To address these overarching objectives, this study aimed to answer three research questions: 1) Are there any differences in mental health status and mental health service

utilization between visible minority immigrant adults and Canadian-born white adults in Canada? 2) What are the social contextual factors that explain the mental health status and mental health service utilization in visible minority immigrant adults and Canadian-born white adults? 3) How do social contextual factors interact to produce the mental health status and mental health service utilization in visible minority immigrant adults and Canadian-born white adults?

In order to answer these research questions, national population health survey data will be analyzed, drawing on data from the 2009-2010 Canadian Community Health Survey (CCHS) (Statistics Canada, 2013), which includes both Canadian-born and immigrant populations. This survey has a sample size of over 120,000 Canadians living in private dwellings in the ten provinces and three territories. The current study will focus on visible minority immigrant and Canadian-born white adults aged 18 to 64. Although the mental health status of immigrant children and youths and Canadian-born visible minority people is equally important, their pathways to psychological wellbeing are very different from that of the immigrant adults and Canadian-born white people respectively (Beiser, 2010; Beiser, Zilber, Simich, Youngmann, Zohar, Taa, & Hou, 2011; Beiser, Hou, Hyman, & Tousignant, 2002; Islam, Khanlou, & Tamim, 2014; Stafford et al., 2010) and as such, they have not been included in the current study. To achieve the study objectives, bivariate analysis was conducted to examine differences in the mental health status and service utilization in visible minority immigrant and Canadian-born white adults. Multivariate logistic regression analysis was used to examine the relationship between socio-demographic variables and both mental health status and service use variables. Interaction analysis was carried out to examine how the predicting variables interacted to produce the abovementioned differences.

### **1.3 Significance of the Current Study**

As noted above, research on mental health status and service utilization among visible minority immigrants in Canada is limited (Stafford et al., 2010). The current research will contribute to the small existing body of research on visible minority migrant mental health experiences, deepening understanding of mental health status, determinants, and service use in a number of important ways. From a theoretical perspective, this study will contribute to a deeper understanding of the complex factors determining immigrant mental health experiences and mental health service use. This includes a better understanding of specific personal, societal, and structural determinants and the ways in which they interact with to influence visible minority immigrant adults' mental health outcomes and service utilization patterns. From a practice and policy perspective, the study's evidence-based findings will provide the knowledge base necessary to support policy-makers and service providers in developing appropriate and effective social and mental health policies and services and devising strategies that best suit the needs of visible minority immigrants, in order to better support visible minority immigrants to utilize their potentials and capacities in Canada.

### **1.4 Definition of Terms**

A number of key terminologies should be defined, to clarify the meaning of terms used in the literature review, descriptions of methodology and findings, and discussion. Some of these complex terms can be defined in numerous ways, but the definitions presented below will be used for the purposes of the current study.

***Asian immigrants:*** Immigrants arriving from countries in East Asia, Southeast Asia, South Asia, and West Asia (Statistics Canada, 2015).

***Canadian-born:*** People who are Canadian citizens by birth (Ali, 2002)

***Immigrant:*** According to the Government of Canada, immigrant is “a person who is or has ever been a landed immigrant/permanent resident. A landed immigrant/permanent resident is a person who has been granted the right to live in Canada permanently by immigration authorities. Immigrants are either Canadian citizens by naturalization (the citizenship process) or permanent residents (landed immigrants) under Canadian legislation” (Statistics Canada, 2015, p. 1).

***Long-term immigrant:*** An immigrant who has ten or more years of length of residence in Canada (Aglipay, Colman, & Chen, 2013).

***Mental health status:*** In the current study, mental health status is measured based on individuals’ self-perceived mental health and self-perceived life stress and the presence of a diagnosed mood disorder and/or a diagnosed anxiety disorder (Islam, Khanlou, & Tamim, 2014).

***Recent immigrant:*** An immigrant who has less than ten years of length of residence in Canada (Aglipay, Colman, & Chen, 2013).

***Visible minority:*** Canada’s Employment Equity Act defines “visible minority” as “persons, other than Aboriginal peoples, who are non-Caucasian in race or non-white in color,” including persons of South Asian, Chinese, Black, Filipino, Latin America, Arab, Southeast Asian, West Asian, Korean, and Japanese descent (Government of Canada, 2014, p. 2).

## **1.5 Structure of the Thesis**

This thesis is comprised of six chapters, this first chapter of which introduces the context within which the research ideas have been developed, as well as the purpose of the present study. Chapter 2 reviews existing literature on the health of visible minority immigrants, with a focus on the “healthy immigrant effect” in relation to immigrant mental health, the social determinants of mental health, and mental health service utilization patterns among visible minority

immigrants. Chapter 3 delineates the theoretical framework adapted for the current study, namely the social determinants of health perspective and Andersen and Newman's (1973) Behavioral Model of Health Service Utilization in the context of intersectionality. Chapter 4 presents the research questions and research hypotheses and describes the methodology in terms of research design, data source, data collection, sampling, and methods of analysis employed for this study. Chapter 5 presents the results drawn from descriptive and regression analyses. Chapter 6 offers a detailed discussion of the results and their implications for policy domains as well as clinical social work research and practice. It also discusses the study's limitations and offers some conclusions.

## **Chapter Two: Review of Literature**

This chapter introduces and reviews key research paradigms and associated research findings related to health and mental health in immigrant populations. Four key areas of literature will be examined: 1) the “healthy immigrant effect”, arguably the most pervasive perspective on immigrant health, 2) help-seeking and mental health service utilization patterns among immigrants in Canada, 3) social determinants of health perspective, and 4) intersectionality perspective. For each of these areas, conceptual and empirical literature, including earlier and recent studies that both support and challenge these discourses, will be examined, and key methodological shortfalls will be identified.

### **2.1 Are Immigrants Sicker or Healthier? A “Healthy Immigrant Effect” Perspective**

With migration increasing worldwide, immigrants’ health and mental outcomes throughout the resettlement process is of significant interest to health scholars, policymakers, and healthcare providers in host countries (Topal et al., 2012). A growing number of studies have examined health disparities between immigrant and native-born populations in major immigrant-receiving countries such as Canada (Aglipay, Colman, & Chen, 2014; Kobayashi & Prus, 2012; So & Quan, 2012), the United States (Singh, Rodriguez-Lainz, & Kogan, 2013; Venters & Gany, 2011; Williams, Haile, Gonzalez, Neighbors, Baser, & Jackson, 2007), Australia (Mellor, Carne, Shen, McCabe, & Wang, 2012; Straiton, Grant, Winefield, & Taylor, 2014), the United Kingdom (Datta & Frewen, 2012; Huang & Spurgeon, 2006), and other European countries (Mewes, Asbrock, & Laskawi, 2015; Straiton, Reneflot, & Diaz, 2014).

#### **2.1.1. Perspectives on immigrant health**

In migrant health literature, the impact of migration on the health profile of immigrants has been delineated through three major approaches that have guided recent research on

immigrant health and mental health: the “migration-morbidity” perspective, the “healthy immigrant effect” perspective, and the “transitional effect” perspective (Hansson, Tuck, Lurie, & McKenzie, 2012). Based on a “sick immigrant” perspective, the migration-morbidity hypothesis suggests that newly arrived immigrants have worse health than members of the host population (Alati, Najman, Shuttlewood, Williams, & Bor, 2003; Hansson et al., 2012; Khanlou, 2010). Immigrants are said to experience poorer health and mental health outcomes as a result of changes and stressors associated with resettlement and acculturation processes (George et al., 2015). Sources of stress include culture shock due to differences in language, values and belief systems, religious practices, behavioral norms, diet preferences, and social institutions (Jafari, Baharlou, & Mathias, 2010; Srirangson et al., 2013), loss of established identities and social networks from one’s home country, generational clashes due to varying degrees of acculturation, employment difficulties (e.g. foreign credential recognition, under- and unemployment), financial strain, and personal, institutional, and systemic discrimination (George et al., 2015; Simich, Hamilton, & Baya, 2006). It is generally believed that greater differences between immigrants’ home and host cultures result in greater mental distress (Alati et al., 2003; Berry, 1997, 2001).

The second major perspective in immigrant health suggests that immigrants are in relatively better health compared to their host country counterparts. This phenomenon is termed the healthy immigrant effect, and is particularly strong among recent immigrants (Ali, 2002; Lou & Beaujot, 2005; Aglipay, Colman, & Chen, 2013). This health advantage has been attributed to a number of factors: 1) stringent immigration medical requirements that “screen out” applicants who may pose a “burden” on the host country’s healthcare system, resulting in the admission of the healthiest immigrants (Hansson et al., 2012), 2) a “self-selection” process by which people

who are younger in age, have higher a educational level, and have positive health predispositions are more inclined to migrate (Wu & Schimmele, 2005), and 3) a lower prevalence of unhealthy lifestyle-related behaviours such as smoking and diet in immigrants' countries of origin (Islam, 2013).

The third major approach, the transitional effect perspective, suggests that newly arrived immigrants' health advantage diminishes over time and converges with that of the general host country population (Alati et al., 2003; Chen, Ng, & Wilkins, 1996; Gushulak, 2007; Islam, 2013). This decline in health status is said to result from extended exposure to acculturation-related stress among longer-term immigrants, as acculturating individuals realize that problems encountered in the host country cannot be quickly resolved despite efforts to adjust and assimilate (Aglipay, Colman, & Chen, 2013).

These three perspectives have heavily influenced recent research in field of immigrant health and mental health. Robust evidence from numerous national and international studies generally supports the notion of the healthy immigrant effect as well as the transitional effect in the realm of physical health in most advanced industrial countries, including Canada. A large body of research has reported that immigrants are generally healthier than the host population in terms of overall health status and prevalence of chronic diseases and disabilities (Ali, McDermott, & Gravel, 2004; Beiser, 2005; Chen, Ng, & Wilkins, 1996; Corlin et al., 2014; Dunn & Dyck, 2000; Fuller-Thomson, Noack, & George, 2011; Gushulak, Pottie, Roberts, Torres, & DesMeules, 2011; Hyman, 2004; McDonald & Kennedy, 2004), although differences in health outcomes narrow significantly with immigrants' length of stay in their host country (McDonald & Kennedy, 2004).

Despite widespread evidence of the presence of a healthy immigrant effect in Canada, some studies have yielded inconsistent findings. Some have reported poorer physical health outcomes among immigrant populations compared to native-born populations. For example, in a study by Kobayashi, Prus, and Lin (2008), Canadian-born Chinese and South Asian participants reported better physical health outcomes (self-rated health, functional health, and activity restriction) than immigrant Chinese and South Asian participants. In another Canadian study, Newbold and Danforth (2003) found that longer-term immigrants, but not recent immigrants, reported poorer physical health than their non-immigrant counterparts. Conversely, other studies have reported improvements in physical health status among immigrant populations. For example, in a qualitative Canadian study by Dean and Wilson (2010), most short-, mid-, and long-term immigrant participants reported that their health had remained stable or even improved due to better living conditions and health behaviours in Canada. Other studies showed that some immigrants were more likely to report a decline in health (De Maio & Kemp, 2010; Ng, 2011) while some reported an improvement in health over time (Newbold, 2009; So & Quan, 2012).

### **2.1.2 Researching immigrant mental health and the “healthy immigrant effect”**

Much of the recent research on immigrant health has focused on physical health, with limited attention to the mental wellbeing of immigrants. Canadian research on immigrant mental health is still in its infancy (Pederson & Raphael, 2006; Veenstra, 2011a). While a relatively small body of research has examined mental health outcomes among immigrants to Canada (Ali, 2002; Ng & Omariba, 2010), findings emerging from large-scale national health surveys and smaller-scale quantitative and qualitative studies have both supported and challenged the relevance of the healthy immigrant effect in terms of mental health outcomes.

Most recent studies of immigrant mental health in Canada have supported the healthy immigrant hypothesis. These include studies that have drawn on national survey data to examine outcomes related to general self-reported mental health status as well as specific conditions such as major depressive episodes, depressive symptoms, substance use, mood disorders, anxiety disorders, and life stress. These studies have also identified a number of factors associated with immigrant mental health, including length of time since immigration, age at immigration, visible minority status, country or region of origin, and age.

Drawing on 2002 CCHS data, Lou and Beaujot (2005) investigated the self-rated mental health among 36,984 immigrant and Canadian-born adults aged 15 and older. Self-rated mental health was measured through a question: “In general, would you say that your mental health is excellent? Very good? Good? Fair? Poor?” It was found that immigrants were less likely (5.95%) than Canadian-born adults (7.04%) to self-report poor mental health status, confirming a healthy immigrant effect. Illustrating a transitional effect, longer-term immigrants (10 or more years in Canada) were more likely (6.85%) than recent immigrants (3.69%) to report poor mental health, and approximated the rate of poor mental health of their Canadian-born counterparts. Long-term immigrant women reported the poorest mental health outcomes. Immigrant women’s loss of health advantage over time could be explained by decreased opportunities for language and skill development due to family and child care responsibilities, structural stressors such as poor job opportunities and increased competition, and acculturative stressors such as alienation and discrimination (Lou & Beaujot, 2005). This study did not analyze health outcomes by ethnic background, which may explain its confirmation of a general healthy immigrant effect.

Bergeron, Auger, and Hamel (2009) analyzed 2005 CCHS data for immigrant and Canadian-born adults in Montreal, Toronto, and Vancouver, and found that recent visible

minority immigrants had a lower likelihood of reporting poor self-rated health and mental health compared to non-immigrants, showing evidence for the healthy immigrant effect. However, this health advantage did not hold true for recent non-visible minority immigrants. For longer-term visible minority and non-visible minority immigrants, rates of poor self-rated health and mental health were not significantly different from that of non-immigrant population, indicating existence of the transitional effect.

In a study of 2001-2005 CCHS data for mental health outcomes of immigrant, visible minority, and native-born Canadian populations aged 20 to 65, Xu and McDonald (2010) found that immigrants, in general, reported significantly better mental health (based on aggregated indicators including depression, alcoholism, stress, and suicidal ideation) than native-born Canadians, but that this health advantage was lost with increased years of residence in Canada. Asian and Black minority groups were less likely to have mental problems compared to their white counterparts. These findings support the existence of healthy immigrant and transitional effects, and also suggest that factors such as age at immigration, marital status, social support, local ethnic networks, locality, education, home ownership, and physical health status, are all important determinants of mental health.

Other population-based studies have examined specific mental health outcomes among immigrant populations, including depression, substance use, and anxiety disorders. In a study drawing on 2000-2001 CCHS data for 92,379 immigrant and Canadian-born adults aged 15 to 75, Ali (2002) found that 12-month prevalence rates for depressive episodes (as measured by the short form of the Composite International Diagnostic Interview, CIDI-SF, including depressed mood, lack of interest in most things, sleep or appetite disturbance, decreased energy, concentration difficulties, feelings of worthlessness, or suicidal thoughts, that last at least two

weeks) and alcohol dependence (also measured by CIDI-SF, including being drunk while at work, school, or childcare, engaging in risky behavior while drunk, having psychological problem related to alcohol use, persistent desire for alcohol, drinking for too much or for too long, or having increased tolerance) were 6.2% and 0.5%, respectively, for immigrant adults compared to 8.3% and 2.5% for Canadian-born adults. This healthy immigrant effect remained even when controlling for individual, intermediate, and systemic factors (age, sex, marital status, language, income, education, sense of belonging, employment status), and was strongest among recent immigrants of Asian and African origin. Health outcomes also varied by region of birth, as the healthy immigrant effect did not hold true for immigrants from the US, Mexico, and Europe. The transitional effect for depression and alcohol dependence were generally found in longer-term immigrants, converging with rates for their Canadian-born counterparts. However, this study suggested inconsistency in the healthy immigrant effect for depression as it reappeared for longer-term immigrants who had lived in Canada for 15-19 years.

In a study based on 2002 CCHS data, Tiwari and Wang (2008) compared the 12-month prevalence of major depressive episode (MDE) among 108,192 Canadian-born whites, 10,982 white immigrants, 1,785 Chinese immigrants, 1,214 South Asian immigrants, and 818 Southeast Asian immigrants, and found that Canadian-born white adults were more likely (7.6%) than white immigrants (6.4%), Chinese immigrants (3.6%), South Asian immigrants (5.2%), and Southeast Asian immigrants (2.9%) to report having experienced a MDE. For Asian immigrants, the likelihood of a depressive episode increased with number of years since immigration, showing evidence for the transitional effect.

Drawing on 1996-97 National Population Health Survey (NPHS) data for 70,538 immigrant and Canadian-born adults, Wu and Schimmele (2005) also reported differences in

mental health outcomes according to time since immigration. Results indicated that immigrants in Canada for less than 10 years and for 15 to 19 years reported significantly fewer depressive symptoms and major depressive episodes (the NPHS depression scale is based on a nine-item subset of questions on depressive symptoms listed in the *Diagnostic and Statistical Manual of Mental Disorders III*) than Canadian-born adults. While findings reflected a healthy immigrant effect for recent immigrants, the transitional effect for longer-term immigrants was challenged, as immigrants in Canada for 15 to 19 and 30 to 34 years reported fewer depressive symptoms or episodes, rather than reporting outcomes similar to Canadian-born adults. Additionally, the healthy immigrant effect did not exist for all immigrant groups: while immigrants of Asian and North/West European descent had a lower risk of depression than Canadian-born adults, those of South/East European descent had similar risk.

Stafford, Newbold, and Ross (2010) analyzed 2000-2001 CCHS data for 108,064 immigrant and Canadian-born adults, and found that immigrant and visible minority adults were less likely to experience depressive symptoms as measured by the CIDI (Kessler et al., 1998) compared to the general population. Being male, under age 30 or over age 50, being married, being an immigrant, having high educational qualifications, and home ownership were independently associated with a lower likelihood of depressive symptoms. A higher regional immigrant population was also significantly associated with lower likelihood of depression for immigrants (but with increased likelihood of depression for white Canadians), potentially due to access to formal and informal ethnic supports and sense of community belonging as a buffer against psychological distress.

Drawing on 2007-2008 CCHS data for 116,796 immigrant and Canadian-born adults aged 18 and older, Aglipay, Colman, and Chen (2014) found that prevalence rates for anxiety

disorders were much lower for recent immigrants (1.85%) and longer-term immigrants (3.95%) than for Canadian-born adults (6.44%). Recent immigrants aged 18 to 39 and 40 to 59 were less likely than their Canadian-born counterparts to experience anxiety disorders, although this healthy immigrant effect was not present for recent immigrants aged 60 or older. The transitional effect was challenged by the findings that longer-term immigrants in all age groups were less likely than Canadian-born adults to have anxiety disorders. This study did not examine differences by ethnic background, and was limited by using only one variable to represent mental health outcomes.

Some research has examined mental health outcomes for specific ethnic populations. For example, Islam, Khanlou, and Tamim (2014) examined differences in four mental health outcomes for 779 South Asian Canadian-born and immigrant adults, drawing on merged CCHS data from 2007 to 2011. The two groups did not vary significantly in rates of mood disorders. However, South Asian immigrants reported higher rates of anxiety disorders and extreme life stress than their Canadian-born counterparts, while Canadian-born South Asians were more likely than immigrants to report fair or poor self-rated mental health, providing only partial support for the healthy immigrant effect. For South Asian immigrants, being female, having no children, experiencing food insecurity, fair to poor self-rated health status, being a smoker, immigrating to Canada before adulthood, and taking the CCHS survey in either English or French were associated with poorer mental health outcomes. For Canadian-born South Asians, being currently unemployed, having a regular doctor, and being physically inactive were associated with poorer health outcomes, reflecting significant differences in health determinants. This study, however, did not investigate the interaction effects of these health determinants.

A small number of mixed methods and qualitative studies have examined mental health outcomes in immigrant populations, providing more detailed findings on immigrants' subjective health experiences. One mixed methods study by Simich, Hamilton, and Baya (2006) examined the health and economic experiences and expectations of 220 recent Sudanese refugees (84%) and immigrants (16%) in Ontario. Participants who reported unmet expectations regarding Canadian life (74.5%) and economic hardship and worry (e.g. about food and medicine) (69%) also reported poorer overall self-reported health and more psychological distress symptoms (as measured by the General Health Questionnaire (Goldberg, 1972), including loss of sleep, constant strain, unhappiness and depression, and bad memories). Refugees were more likely than other immigrants (e.g. skilled worker and family class) to report psychological distress, potentially due to pre-migration trauma, displacement, and interruption of education, work, and family networks as a result of forced migration. Work-related frustrations and stress, family separation, and social isolation were also identified as health stressors for immigrants.

A qualitative study by Jafari, Baharlou, and Mathias (2010) examined mental health understandings and experiences among 44 younger (aged 25 and below), middle-aged (30 to 60 years), and older (aged 65 and above) Iranian immigrants in British Columbia. Most study participants understood mental health as a synonym for psychiatric illness. Mental distress was associated with communication difficulties and limited English proficiency, difficulties finding employment (not being qualified to work in their original profession or being overqualified for entry-level jobs), loss of social status and social support, acculturation challenges (intention to keep original cultural and religious norms), and family relationship difficulties (including parent-child conflict due to differing acculturation and decreasing parental power, and spousal tensions due to husbands' employment difficulties). These studies, which used qualitative and

quantitative mixed methods to investigate the mental health outcomes of immigrants in Canada, provide a more detailed analysis of micro-, meso-, and macro-level difficulties and challenges encountered by visible minority immigrants in their host society, and identify factors that influence the healthy immigrant effect. These findings do not, however, confirm the existence of a healthy immigrant effect as they do not involve Canadian-born reference groups.

The majority of existing research on immigrant mental health has generally supported the existence of a healthy immigrant effect (Tiwari & Wang, 2008; Xu & McDonald, 2010). However, some studies have reported contradictory findings, with diverse immigrant populations experiencing poorer mental health outcomes than other Canadian populations, providing some support to the migration-morbidity hypothesis. Differences in results across studies may be attributed to differences in methodology, dataset, period of study, and selection of variables, among other factors (Safaei, 2011). In a study of Statistics Canada and Canadian Institute for Health Information data from 121 health regions in 2006-09, Safaei (2011) examined mental health outcomes across different Canadian communities including Aboriginals, minorities, and rural population. It was found that visible minority men and women, the majority of whom were immigrants, reported poorer perceived mental health compared to other Canadians, while visible minority men reported greater life stress. However, visible minority adults reported lower hospitalization for mental illness and self-injury. These findings contrasted with most current research studies that report a healthy immigrant effect in different immigrant populations.

Findings that challenge the healthy immigrant effect and provide some support to the migration-morbidity hypothesis have also been reported in smaller-scale, region-specific studies. In an earlier study of 3,473 Chinese adults aged 65 and older in Calgary by Lai (2000), 9.4% of men and women reported mild depressed and 11.5% reported moderate to severe depression as

measured by the Chinese version 15-item Geriatric Depression Scale (Lee, Chiu, Kwok, Leung, & Kwong, 1993). Women reported significantly higher levels of depression than men: 28.8% of women reported mild to severe depression, double the estimated prevalence rate for Canada's general elderly population. Similarly, in multi-site studies of 444 elderly immigrants from Mainland China (Lai, 2004) and 98 older immigrants from Taiwan (Lai, 2005), 23.2% and 21.5% of participants, respectively, reported some depressive symptoms, reflecting a prevalence rate higher than that among the general older population. While these studies did not involve comparison between the immigrant and Canadian-born populations, their findings regarding the negative mental health outcomes of visible minority immigrant adults are of significance.

In summary, the current body of literature on healthy immigrant and transitional effects on mental health in Canada reflect diverse, inconsistent, and subsequently inconclusive findings (Islam, 2013). Although most of the limited research on immigrant mental health has generally supported the notion of the "healthy immigrant effect," others have reported that this effect is present only in certain recent visible minority immigrant groups (Bergeron et al., 2009; Wu & Schimmele, 2005). Most studies on immigrant mental health outcomes in Canada were based on datasets compiled nearly a decade ago, and more up-to-date research is needed to inform a deeper understanding of the healthy immigrant phenomenon with respect to mental health (Islam, 2013).

In addition, the concept of the healthy immigrant effect implies that all immigrants enjoy mental health benefits or advantages, which is misleading, given that a wide range of other health determinants are at play beyond immigrant status alone (Cairney, Veldhuizen, Vigod, Streiner, & Wade, 2014). As more immigrants from diverse backgrounds are being and will be admitted to Canada, local policymakers, healthcare providers, and community groups who take

the notion erroneously will risk overestimating immigrants' mental health status and underestimating mental health resources required by immigrants facing a range of mental health challenges. While some recent studies have begun to emphasize the important effects of systemic determinants on immigrant mental health, most have reported on the effects a select number of individual factors, including gender, age, visible minority status, time since immigration, country or region of origin, and physical health status (Ali, 2002; Aglipay, Colman, & Chen, 2014; Islam, Khanlou, & Tamim, 2014; Lai, 2000; Safaei, 2011; Stafford, Newbold, & Ross, 2010; Xu & McDonald, 2010). Also, the combined effects of social determinants, including personal demographic characteristics, ethno-racial background, immigrant status, and socio-economic status, on mental health disparities in Canada have not been sufficiently investigated. Additional research examining the intersecting determinants of immigrant mental health outcomes in Canada, drawing on recent population health data, is therefore necessary.

## **2.2 Help-Seeking and Mental Health Service Utilization by Visible Minority**

### **Immigrants in Canada**

This section discusses the effectiveness of health and mental health care services in Canada, focusing on responses to needs of visible minority immigrant populations and the help-seeking attitudes and mental health service utilization patterns among visible minority immigrants in Canada. The section concludes with a discussion of the application of the Andersen and Newman Model of Health Service Utilization (Andersen & Newman, 1973) to mental health care in Canada.

### **2.2.1 Canada's universal health care system and health and mental health care**

#### **needs**

Most healthcare systems in “developed” countries uphold principles of equity to ensure fair access to needed health and mental health care for all citizens (Allin, Grignon, & Le Grand, 2010). In Canada, the Canada Health Act guides federal legislation for the implementation of a publicly funded universal healthcare system that aims to “protect, promote and restore the physical and mental well-being of residents of Canada and to facilitate reasonable access to health services without financial or other barriers” (Government of Canada, 2012, p.5). All eligible Canadians, irrespective of SES, are guaranteed equitable access to insured health and mental health services on a prepaid basis, without direct charges for users at the point of service delivery (Health Canada, 2010).

Despite the good intentions of this universally accessible healthcare policy, achievement of it remains questionable. National population health surveys have reported rising unmet healthcare needs among Canadians (Bryant, Leaver, & Dunn, 2009). In the past two decades, increasing numbers of Canadians have reported that they have not received general health care responding to their perceived needs. Comparisons of past national population health surveys (the 1998-1999 NHPS, and the 2000-2001 CCHS), the proportion of Canadians aged 12 and older reporting having not received needed health care rose from 6% in 1998-1999 to 13% in 2000-2001, equivalent to 3.2 million individuals. The proportion of people reporting long healthcare waiting times rose from 23% in 1998-1999 to 30% in 2000-2001 (Chen, Hou, Sanmartin, Houle, Tremblay, & Berthelot, 2002). A more recent study by Allin, Grignon, and Le Grand (2010) analyzed 2003 CCHS data for 97,828 Canadians aged 18 and older, and found that 14% of participants reported unmet needs, rising to 20% among women aged 18 to 34. Similarly, a study

of 2,536 British Columbia residents aged 18 or older (Bryant et al., 2009) found that 13.2% of respondents reported an unmet healthcare need. These reports of subjective unmet health needs have been linked mainly to healthcare system delivery issues, including long waiting times and unavailability of services when required (Allin et al., 2010; Chen, 2010; Chen et al., 2002).

Use of mental health services by Canadians is even more limited than use of general health services, despite the fact that many Canadians experience a need for mental health care. This has become a matter of concern for health researchers (Sunderland & Findlay, 2013). In a study of 2000-2001 CCHS data for 125,493 Canadian aged 12 and older, Sareen and colleagues (2005) found that only 8.3% had consulted health care services for their emotional problems. Using the same CCHS dataset, Starks, Poulin, and Kisely (2005) examined unmet mental health need among 17,836 respondents aged 12 or older in Atlantic Canada, and found that 7.3% had experienced a MDE in the past year but only 28% of those reported having consulted mental health care specialists (e.g. psychiatrists, psychologists, social workers or counselors) for their depressive symptoms. A study of 2002 CCHS data by Urbanoski, Cairney, Bassani, and Rsh (2008) reported prevalence rates for perceived unmet needs of 21% among people with a mental disorder and 51% among those with co-occurring mental disorders and substance use. Different from the predominant reason for underuse of general health care services identified as an access barrier of long waiting time, the most commonly expressed reason for not using mental health care was the decision to self-manage symptoms. In a more recent study drawing on 2012 CCHS data for 25,113 Canadians aged 15 and older (Sunderland & Findlay, 2013), 17% of respondents reported a mental health care need (e.g. mental or substance disorder, distress) in the past 12 months. Of those, 12% reported having an unmet mental health care need while 21% reported a partially (insufficiently) met need, as a result of being too busy (73%), preferring to self-manage

symptoms (43%), or healthcare system features, including services being unavailable when needed (19%).

From the above-mentioned studies regarding health and mental health service utilization by the general Canadian population, it appears that unmet or insufficiently met health and mental health care needs are the result of barriers linked to care or service acceptability (attitudes toward illness or the healthcare system), availability (services unavailable when required), and accessibility (cost, transportation, or language issues) (Chen et al., 2002; Nelson & Park, 2006).

### **2.2.2 Help-seeking patterns for mental health among visible minority immigrants in Canada**

The number of Canadians reporting unmet or insufficiently met health or mental health care needs is growing despite the existence of a publicly funded universal health care system. In light of the general challenges facing Canadians when accessing health or mental health services, and given Canada's increasingly diverse population, it is important to examine whether visible minority immigrants encounter similar obstacles in accessing mainstream mental health care services, and to identify barriers to mental health care specific to diverse immigrant populations.

Despite the heightened psychological distress arising from migration and resettlement challenges, studies of visible minority and immigrant populations have repeatedly reported persistent underutilization of formal mental health services, including mental health consultations (with general practitioners, psychiatrists, psychologists, social workers, or counselors, for example), psychiatric hospitalizations, and psychopharmacological treatment (Chen, Kazanjian, Wong, & Goldner, 2010; Nguyen & Lee, 2012), as well as delayed help-seeking tendencies (Abe-Kim, Takeuchi, & Hwang, 2002; Lin, 1983; Lin & Cheung, 1999). These findings have been reported by studies conducted in western countries such as Canada

(Chen, Kazanjian, & Wong, 2009; Chen & Kazanjian, 2005; Chen et al., 2010; Fang, 2010; Kirmayer, Weinfeld, Burgos, Guillaume, & Lasry, 2007; Mojtabai & Olfson, 2006; Whitley, Kirmayer, & Groleau, 2006; Tiwari & Wang, 2008), the United States (Abe-Kim et al., 2007; Kung, 2003; Sentell, Shumway, & Snowden, 2007; Zhang, Snowden, & Sue, 1998), Australia (Straiton, Grant, Winefield, & Taylor, 2014), the United Kingdom (Giacco, Matanov, & Priebe, 2014), and other European countries (Straiton, Reneflot, & Diaz, 2014).

Epidemiological research findings suggest that visible minority immigrants' perceptions of formal healthcare systems affect help seeking for psychological distress (Abe-Kim et al., 2007; Tieu & Konnert, 2014). Canadian studies have examined patterns of mental health service use by specific immigrant groups. For example, a study of 342 Ethiopian immigrant and refugee adults in Toronto (Fenta, Hyman, & Noh, 2006) found that 8% had consulted alternative non-healthcare professionals (e.g. religious leader, traditional healer), while only 5% accessed mainstream mental health services (e.g. family physicians, psychiatrists), with utilization rate much lower than for the general population. Among participants with mental disorders, only 12.5% used mainstream mental health services, whereas 18.8% consulted non-healthcare professionals. Similarly, a study of 149 Chinese immigrants aged 55 and older (Tieu & Konnert, 2014) found that 8% of the participants consulted non-professionals (e.g. clergy, family members, friends) while only 5% consulted mainstream primary health or mental health care professions (e.g. primary care physicians, psychologists, psychiatrists, social workers).

Other studies have reported differences in mental health service use across immigrant groups, with Asian immigrants being significantly less likely to use mainstream mental health care services compared to immigrants of European descent and local-born populations (Tiwari & Wang, 2008; Zhang et al., 1998). Mental health service use rates are particularly low for East

Asian immigrants, compared to Southeast Asian, South Asian, or other Asian immigrant groups (Lee, Martins, & Lee, 2015; Tiwari & Wang, 2008). In one population-based study based on 2000-2001 CCHS data for Canadian-born white and Asian immigrant adults, Tiwari and Wang (2008) found that Canadian-born white adults experiencing major depressive episodes had significantly higher mental health service use rates (46.2%) than Southeast Asian (26.9%), South Asian (37.5%), and Chinese immigrants (26.1%). Consistent with other Canadian studies on Chinese immigrants' use of mental health services, Chinese immigrants least benefited from mainstream mental health care services (Chen & Kazanjian, 2005; Chen et al., 2010).

The notion of the “model minority” (Ng, Lee, & Pak, 2007) in relation to the healthy immigrant can affect perceptions of mental health service use among particular visible minority and immigrant groups. For example, model minority Asians may be characterized as hardworking, as academically and socio-economically successful, and as rarely using psychological services due to low rates of psychopathology (Barry & Grilo, 2002; Gupta, Szymanski, & Leong, 2011; Hu, Snowden, Jerrell, & Nguyen, 1991; Lin & Cheung, 1999). However, this label can overlook people's actual mental health care needs (Kung, 2003), and recent studies have challenged these “positive” stereotypes by showing that individuals' endorsement of model minority beliefs was associated with greater psychological distress and more negative attitudes toward help-seeking, as one's inability to fulfill expectations led to feelings of inadequacy (Gupta et al., 2011). Some health researchers have attributed the underutilization of mental health services by immigrants to the healthy immigrant effect, which suggests that immigrants generally enjoy better health and mental health than the general population and that immigrants' lower health and mental health service use indicates that the Canadian healthcare system is sufficient to meet their needs (Wu, Penning, & Schimmele, 2005).

However, as evidenced in this review, this argument is challenged by other Canadian studies reporting that visible minority immigrants with severe or persistent mental disorders also underutilize existing mental health care services (Chen et al., 2010; Tiwari & Wang, 2008).

A wide array of factors, at the individual (micro), intermediate (meso), and systemic (macro) levels, has been identified to explain visible minority immigrants' limited use of mainstream mental health services and differences in service utilization between immigrant and Canadian-born populations. Individual level factors include personal demographic factors such as male gender or older age (Barry & Grilo, 2002; Nguyen & Lee, 2012), limited English language proficiency (Abe-Kim et al., 2007; Barry & Grilo, 2002; Chen & Kazanjian, 2005; Giacco et al., 2014; Kim et al., 2011; Kirmayer et al., 2007; Sentell et al., 2007; Straiton et al., 2014; Tiwari & Wang, 2008; Wu, Kviz, & Miller, 2009; Wu et al., 2005), and personality traits such as poor sense of control, lack of disposition of hardiness, and low self-esteem (Kung, 2003).

Intermediate level factors include lack of family support or family conflicts (Abe-Kim et al., 2002; Sadavoy, Meier, & Ong, 2004; Scheppers et al., 2006; Wu et al., 2009), culturally determined causal beliefs of illness (Chen et al., 2009; Lin, 2010; Fenta et al., 2006; Fung & Wong, 2007; Giacco et al., 2014; Lee, Martins, & Lee, 2015; Leong & Lau, 2001; Sheikh & Furnham, 2000; Tieu & Konnert, 2014), help-seeking preference for alternative medicine or informal help from relatives and friends (Fang, 2010; Zhang et al., 1998; Fenta et al., 2006; Tiwari & Wang, 2008; Whitley et al., 2006), somatization of psychological distress (Lin, 2010; Fenta et al., 2006; Tiwari & Wang, 2008), and low levels of acculturation (Kung, 2003; Leong & Lau, 2001).

Systemic level factors include lack of knowledge about mental illness and available mental health services (Abe-Kim et al., 2007; Lin, 2010; Leong & Lau, 2001; Sadavoy et al.,

2004; Tiwari & Wang, 2008; Wu et al., 2009; Wu et al., 2005), lack of ethnically and linguistically matched mental health professionals (Fung & Wong, 2007; Sadavoy et al., 2004), lack of financial means or insurance coverage (Giacco et al., 2014; Leong & Lau, 2001; Steele, Glazier, & Lin, 2006; Wu et al., 2009) (universal health insurance in Canada does not necessarily cover all medication expenses). Other systemic factors include lack of transportation (Wu et al., 2009), social stigma on mental illness and shame (Abe-Kim et al., 2007; Lin, 2010; Giacco et al., 2014; Leong & Lau, 2001; Sadavoy et al., 2004; Tiwari & Wang, 2008; Wu et al., 2009), and experience of discrimination (Lin, 2010; Spencer & Chen, 2004).

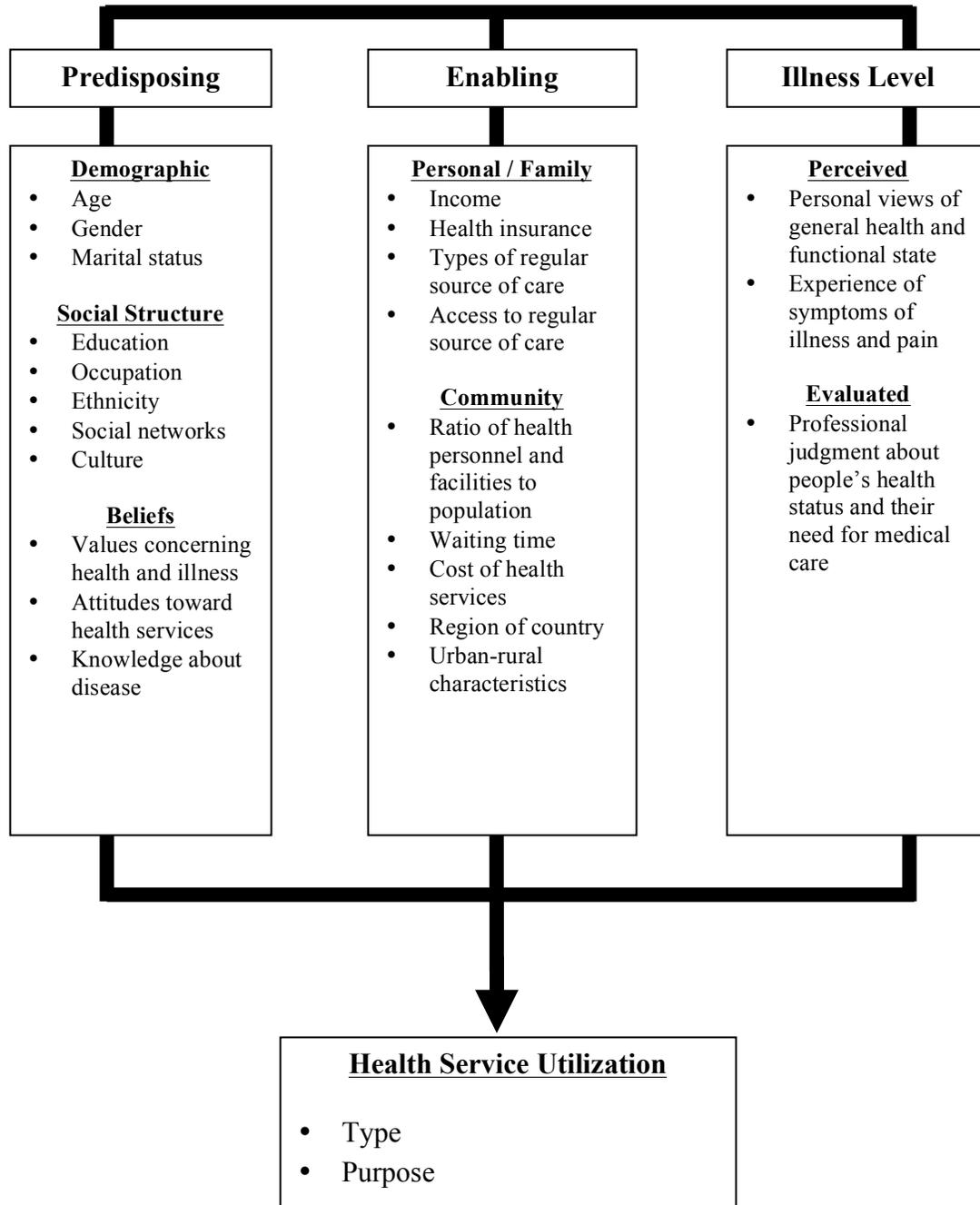
Culturally-related factors have emerged as major influences on disparities in mental health service utilization between visible immigrants and native-born population in recent research (Chen et al., 2009). In Kleinman's (1977, 1982, 2004) earlier and classical studies on relationship between culture and health, he proposed an explanatory model of illness in which an individual's perception, experience, and manifestation of illness are embedded in his or her socio-cultural context. In other words, different ethno-cultural groups may have different culturally determined explanations for symptoms, perceived causes, and treatment preferences related to illness (Hwang, Myers, Abe-Kim, & Ting, 2008). Kleinman (1982) explained that somatization of psychological symptoms is more prevalent among visible minorities, such as Asian immigrants, because public expression of emotional distress is generally stigmatized and discouraged in Asian societies as it is associated with personal weakness or inadequacy, whereas presentation of somatic symptoms is more acceptable (Chung, 2010). Seeking informal help from relatives or friends is seen as less threatening than professional help, and is thought to "preserve face" for the distressed individual (Zhang et al., 1998).

Kleinman's classical explanatory model of illness has made significant contributions to the field of cross-cultural psychiatry by increasing researchers' and practitioners' awareness of cultural impacts on ethno-cultural variations in health and mental health service utilization patterns. However, it has been criticized for its attribution of mental health service underutilization among visible minority immigrants to a culturally determined explanatory model of illness, without considering other systemic factors. This can be seen to place the blame on the service users, potentially justifying inequitable service provision in the host society (Dein, 2003; Fung & Wong, 2007).

### **2.2.3 Using Andersen and Newman's model to understand mental health service use by visible minority immigrants**

Access to health and mental health care is a dynamic process that involves an individual seeking help, the system providing care, and the various social contextual factors that facilitate or impede this (Chen et al., 2002). Andersen and Newman (1973)'s model (Figure 1) is a commonly used theoretical framework for understanding health service utilization patterns, taking both individual and social contextual factors into account (Andersen, 1995). The model suggests that service use is dependent on: 1) an individual's predisposition to use services, 2) the individual's ability to secure services, and 3) the individual's level of illness or need (Andersen & Newman, 1973). The Andersen and Newman model is a valuable tool to identify and sequence relevant variables to explain mental health service utilization patterns (Scheppers et al., 2006).

Figure 1. The Andersen and Newman model of health service utilization



Source: Andersen, 1995, p. 7; Andersen & Newman, 1973, p. 4

Service use patterns are understood as an outcome of complex relationships between predisposing, enabling, and need factors (Lai, 2001). Predisposing factors refer to individual characteristics that drive people's attitudes and decisions to use formal services, including demographic, social structural and attitudinal or health belief variables (Andersen & Newman, 1973; Lai, 2008). Demographic variables associated with health, illness, and service use include age, sex, marital status, and past illness. Social structural variables reflect an individual's social status as measured by characteristics such as education, occupation, religion, and ethnicity. Attitudinal or health beliefs about diseases, medical care, and healthcare professionals influence people's inclination to use health services (Andersen, 1995; Andersen & Newman, 1973; Kleinman, 1977). Studies have reported that individual attributes such as ethnic minority or immigrant status and cultural and language barriers make it less likely for people to use health care services (Kirmayer et al., 2007; Lai & Surood, 2010; Stuart et al., 1996; Tiwari & Wang, 2008), while female sex, Caucasian status, older age, unmarried status, higher education, living alone, poor self-rated health and greater number of health conditions, and perceived stigma about illness are associated with increased health service use (Bertakis et al., 2000; Chen & Kazanjian, 2005; Chung, 2010; Dunlop, Coyte, & McIsaac, 2000; Keene & Li, 2005; Kim et al., 2010; Kirmayer et al., 2007; Lai, 2001, 2004, 2008; Lai & Chau, 2007; Lai & Surood, 2010; Mahmood, Bauze, Lokhorst, & Saniotis, 2012; Mojtabei & Olfson, 2006; Tiwari & Wang, 2008).

Enabling factors refer to circumstances that facilitate or impede service use (Lai, 2001), commonly measured by income, health insurance coverage, regular source of care, and family-level care accessibility, number of health facilities and personnel, transportation access, and translation services (Andersen, 1995; Andersen & Newman, 1973; Lai, 2001). Studies have

reported that lower income, lack of health insurance, limited healthcare system knowledge, lack of social support, and transportation difficulties are associated with lower health service use (Bertakis, Azari, Helms, Callahan, & Robbins, 2000; Chung, 2010; Dunlop et al., 2000; Deri, 2005; Lai & Surood, 2010; Ngwakongnwi, Hemmelgarn, Musto, Quan, & King-Shier, 2012; Tamers, Beresford, Thompson, Zheng, & Cheadle, 2011). For example, a study by Dunlop et al. (2000) found that Canadians with lower SES (lower income and education) were less likely to visit psychiatrists, despite the existence of a universal health insurance system. Individuals of lower SES may be less able to articulate their care needs for care whilst those with higher SES may be more motivated to seek health benefits (Dunlop et al., 2000; Blackwell, Martinez, Gentleman, Sanmartin, & Berthelot, 2009).

Need factors refer to the immediate cause of health service use, including both physical and psychological health problems. These include individuals' perceptions of health and illness (e.g. self-perceived symptoms and health status) as well as actual medical diagnosis (Andersen, 1995; Andersen & Newman, 1973). Studies have found that people who report poorer self-rated health and mental health and those with diagnosed illnesses are more likely to use health care services (Kim et al., 2010; Tiwari & Wang, 2008).

While the Andersen-Newman model (1973) has been widely adopted by health researchers in examining population patterns of health care service use, limited research has drawn on this theoretical framework to study mental health service utilization among visible minority immigrants in Canada. The previously identified factors affecting visible minority immigrants' mental health service use can be summarized within the context of this model, reflecting its relevance to the current study.

## **2.3 Social Determinants of Health Perspective**

### **2.3.1 Background to social determinants of health**

Since the 1970s, researchers and policy makers have demonstrated increasing interest in the concept of “social determinants of health” as a framework for understanding population health inequalities (Blane, Brunner, & Wilkinson, 1996; Marmot & Wilkinson, 2006). In 1974, the Canadian government published a working document on the health of Canadians, known as the Lalonde Report, which identified human biology, environment, lifestyle, and health care organization as social determinants of health (Lalonde, 1974). This document was of key importance in outlining determinants of health outside a health care system based on traditional biomedical and behavioral models (Raphael, 2009). In the United Kingdom, the Black Report and the Health Divide published in 1980 and 1992 respectively sparked debate on social conditions shaping health, describing how groups with the lowest employment levels were more likely to suffer from a wide range of diseases and premature death (Townsend, Davidson, & Whitehead, 1992). These reports also stimulated further research on health inequalities and determining factors in the United Kingdom (Benzeval, Judge, & Whitehead, 1995; Gordon, Shaw, Dorling, & Davey, 1999; Graham, 2004a, 2004b).

The term “social determinants of health” emerged only in 1996. In a chapter from *Health and Social Organization: Towards a Healthy Policy for the Twenty-First Century* (Blane, Brunner, & Wilkinson, 1996), Tarlov (1996) stated that “inequalities in the quality of social determinants of housing, education, social acceptance, employment, and income become translated into disease-related processes through individuals comparing themselves unfavorably to others” (as cited in Raphael, 2009, p. 5). The WHO followed this work with its *Social Determinants of Health: The Solid Facts* document in 1998 (Wilkinson & Marmot, 1998). Since

the 1990s, the social determinants of health perspective has become increasingly prominent in national and international health policy discussions as well as in health research (Hankivsky & Christoffersen, 2008; Raphael, 2009; Wolff, 2011), as health inequalities are associated with fundamental public health and social justice concerns in countries across the world.

Social determinants of health refer to the socio-economic conditions that shape the health of individuals, communities, and the population as a whole (Raphael, 2009), as illustrated in Figure 2 (Brunner & Marmot, 2006). This perspective proposes that the root causes of human health status are not biomedical or behavioural risk factors (e.g. diet, smoking, exercise). Rather, the ways in which governments implement economic and social policies and distribute resources influence human health status (Frank & Mustard, 1994; Hayes & Dunn, 1998). These socio-economic-political mechanisms that produce health disparities exert influences across gender, age, class, ethnicity, language, and socio-economic differences (Dunn & Dyck, 2000). The study of social determinants of health thus focuses on two fundamental questions: the societal factors that shape and explain the health differences across groups and within groups, and the social forces that shape the quality of these social determinants (Raphael, 2009).

### **2.3.2 Identifying social determinants of health**

A variety of contemporary frameworks or approaches have emerged in the study of social determinants of health (Table 2.1), developed by national government bodies. The United Kingdom, for example, outlines ten social determinants of population health: social gradient, stress, early life, social exclusion, work, employment, social support, addiction, food, and transport (Wilkinson & Marmot, 2003). In the United States, the Centers for Disease Control and Prevention (CDC, 2014) has identified five categories of health determinants: biology and genetics (e.g. sex, age), individual behavior (e.g. alcohol and tobacco use, drug use, unprotected

sex), social environment (e.g. discrimination, income), physical environment (e.g. living conditions), and health services (e.g. access to quality healthcare, availability of health insurance). In Canada, the Public Health Agency of Canada (PHAC, 2013) outlines a multi-dimensional list of socio-economic, social, psychosocial, biological, and cultural health determinants, and has identified 12 social determinants of health: income and social status, social support networks, education and literacy, employment and working conditions, social environments, physical environments, biology and genetic endowment, personal health practices and coping skills, healthy child development, health services, gender, and culture, although discrimination is not included. Another model was developed at a York University conference held in Toronto in 2002, naming 14 social determinants of health: income and income distribution, education, unemployment and job security, employment and working conditions, early childhood development, food insecurity, housing, social exclusion, social safety net, health services, aboriginal status, gender, race, and disability (Mikkonen & Raphael, 2010). While covering a number of important factors, these frameworks for determinants of health do not explicitly mention migration and resettlement processes, which are crucial health determinants (Meadows, Thurston, & Melton, 2001). In the current study, the social determinants of health from these two comprehensive and complementary Canadian approaches will be adopted in order to examine mental health status and service utilization among visible minority immigrants.

Table 2.1. Different approaches or frameworks in the study of social determinants of health

United Kingdom (WHO, 2003)	United States (CDC, 2014)	Canada	
		PHAC, 2013	York University Conference, 2002
<ol style="list-style-type: none"> <li>1. Social gradient</li> <li>2. Stress</li> <li>3. Early life</li> <li>4. Social exclusion</li> <li>5. Work</li> <li>6. Employment</li> <li>7. Social support</li> <li>8. Addiction</li> <li>9. Food</li> <li>10. Transport</li> </ol>	<ol style="list-style-type: none"> <li>1. Biology and genetics</li> <li>2. Individual behavior</li> <li>3. Social environment</li> <li>4. Physical environment</li> <li>5. Health services</li> </ol>	<ol style="list-style-type: none"> <li>1. Income and social status</li> <li>2. Social support networks</li> <li>3. Education and literacy</li> <li>4. Employment and working conditions</li> <li>5. Social environments</li> <li>6. Physical environments</li> <li>7. Biology and genetic endowment</li> <li>8. Personal health practices and coping skills</li> <li>9. Healthy child development</li> <li>10. Health services</li> <li>11. Gender</li> <li>12. Culture</li> </ol>	<ol style="list-style-type: none"> <li>1. Income and income distribution</li> <li>2. Education</li> <li>3. Unemployment and job security</li> <li>4. Employment and working conditions</li> <li>5. Early childhood development</li> <li>6. Food insecurity</li> <li>7. Housing</li> <li>8. Social exclusion</li> <li>9. Social safety net</li> <li>10. Health services</li> <li>11. Aboriginal status</li> <li>12. Gender</li> <li>13. Race</li> <li>14. Disability</li> </ol>

Drawing on the emerging determinants of health perspective, a substantial body of research in Canada and other western countries has documented relationships between health status, health care utilization, and various social determinants of health (Andersen & Newman, 1973; Chau & Lai, 2011; Chotikapanich, Creedy, & Hopkins, 2003; Denton, Prus, & Walters, 2004; Denton & Walters, 1999; Dunlop, Coyte, & McIsaac, 2000; Dunn & Dyck, 2000; Frohlich, Ross, & Richmond, 2006; Halli & Anchan, 2005; Marmot & Wilkinson, 2006; Martinson, 2012; Safaei, 2011; Silveira & Ebrahim, 1998; Walters, McDonough, & Strohschein, 2002; Wareham, Fowler, & Pike, 2007). Sex, age, income, education, occupational status, family structure, social support, size of ethno-cultural community, chronic stressors, mastery of environment, and health behaviors such as alcohol consumption, tobacco use, weight, diet, and

physical activity among others have all been linked with differences in population health outcomes (Chau & Lai, 2011; Denton et al., 2004; Denton & Walters, 1999; George, Jorm, Kolt, Bambrick, & Lujic, 2012; Halli & Anchan, 2005; Leung, Gartner, Hall, Lucke, & Dobson, 2012; Tsai et al., 2009; Walters et al., 2002; Wareham et al., 2007). Some of these key social determinants of health are discussed in detail in the following sections.

***Gender as a social determinant of health.*** Gender has been frequently documented as an important determinant of health. Women generally experience poorer physical health and mental health than men, reporting higher rates of affective disorders (Grella & Lovinger, 2012; Patten et al., 2008; Rotenberg, Silva-Costa, & Griep, 2014; Smith, Matheson, Moineddin, & Glazier, 2007; Wareham et al., 2007) and chronic illnesses (Aubin, Berlin, & Reynaud, 2012; Belsky et al., 2015; McDonough & Walters, 2001; Prus & Gee, 2003). However, women also have generally lower rates of mortality and longer life expectancy compared to men (Wang et al., 2013). Moreover, gender differences in health vary by age and SES (Denton et al., 2004). Gender-based health differences are not as simple as often depicted, with differential exposure to various social determinants of health contributing to inequalities in health status between men and women (Denton et al., 2004; Denton & Walters, 1999).

***Age as a social determinant of health.*** Numerous studies have identified age as a health determinant, although patterns of association are complex (Denton & Walters, 1999; Halli & Anchan, 2005). Generally, physical health deteriorates with advanced age, with older adults reporting poorer self-rated health and functional health and more chronic illnesses than their younger counterparts (Shooshtari, Menec, & Tate, 2007). However, levels of psychological distress are reported to be lower among older adults (O'Connor, 2006). Health outcomes vary with age and SES (Santoni et al., 2015).

*Socio-economic status as a social determinant of health.* SES, commonly measured by income adequacy, education, occupational status, main activity of daily life, and home ownership (Denton et al., 2004; Denton & Walters, 1999; Halli & Anchan, 2005; Islam, Khanlou, & Tamim, 2014) has been widely recognized as a critical determinant of health, exposing individuals to different social and economic conditions that affect life chances and choices (Marmot, 2004). Income is particularly important, as it serves as a foundation for the quality of many other social determinants of health, including quality of early life, education, housing, employment and working conditions, food security, and social exclusion across the lifespan (Raphael, 2006). Higher levels of income and education have been shown to positively affect health and mental health outcomes for both women and men, as people with higher SES tend to have a greater understanding of healthy behaviors, higher quality of social support, greater feeling of personal control, lower level of stress, and a greater likelihood of seeking medical consultation (Halli & Anchan, 2005; Phipps, 2003; Safaei, 2011; Smith et al., 2007).

With respect to occupational status, professional self-employment is associated with better perceived health (compared to semi-skilled or un-skilled employment) for men, while higher status occupations are associated with poorer health for women (Denton et al., 2004; Denton & Walters, 1999). For main activity of daily life, going to school, being retired, being unemployed, and recovering from an illness are all associated with poorer health outcomes, compared to full-time employment and combined full-time work and family caregiving responsibilities, namely the double day (Denton et al., 2004; Denton & Walters, 1999; Halli & Anchan, 2005; Janlert, Winefield, & Hammastrom, 2015). Owning a home has also been associated with health benefits, such as lower mortality and morbidity rates, while home rental is associated with higher levels of distress and depression (Cairney & Boyle, 2004; Dunn, 2000;

Dunn & Hayes, 2000; Evans, Wells, Chan, & Saltzman, 2000; Howden-Chapman, Chandola, Stafford, & Marmot, 2011).

*Ethnic and racial status as a social determinant of health.* Recent research has identified racial origin as a determinant of health disparities (Halli & Anchan, 2005; Mikkonen & Raphael, 2010). Although limited Canadian research has examined the relationship between race or ethnicity and health, compared to the United States (McMullin, 2004), increasing attention is being paid to health differences among different ethnic or racial groups as a result of changing patterns of immigration to Canada in recent decades (Pederson & Raphael, 2006; Blair & Schneeberg, 2014). As discussed in Section 2.1, while studies have described a healthy immigrant effect among recent visible minority immigrants, this health advantage is often lost over time and immigrants are more likely than Canadian-born populations to report health deterioration (Ng, Wilkins, Gendron, & Berthelot, 2005; Kobayashi & Prus, 2011). Racial health differences are also affected by exposure to socioeconomic and occupational challenges and by systemic experiences of discrimination. Members of racialized groups in Canada are overrepresented in lower status occupations and are more likely to experience poverty and low income, which may negatively impact their health (Pederson & Raphael, 2006; Galabuzi, 2009).

*Marital status as social determinants of health.* Marital status is an important demographic factor associated with health and mental health outcomes (Lindstrom & Rosvall, 2012). Studies have reported that non-married, divorced, separated, and widowed men and women are more likely than married men and women to experience chronic disease, depression, and all-cause mortality (Eaker, Sullivan, Kelly-Hayes, D'Agostino, & Benjamin, 2007; Masocco et al., 2008; Romans, Cohen, & Forte, 2011). However, married status is not a protective factor in all circumstances (Hughes & Waite, 2002). For example, married persons living with others,

previously married persons living alone, and previously married persons living with others are reported to experience poorer health than married couples living alone (Rogers, 1996; Colton, Janzen, & Laverty, 2015).

***Living arrangement as social determinants of health.*** Living arrangement or household composition has also been documented as an important determinant of health. Married-couple households are reported to experience better health outcomes as a result of having more economic resources, social support for healthy behaviors, emotional intimacy, and social attachment (Hughes & Waite, 2002; Lindstrom & Rosvall, 2012). Married couples living alone or with children report better physical and psychological health than people who live alone, people who live with other(s) than a partner, and single women with children (Cairney, Boyle, Offord, & Racine, 2003; Hughes & Waite, 2002; Joutsenniemi et al., 2006). Health differences according to living arrangements are also influenced by socio-demographic factors such as age, gender, employment, health behaviors, and social support (Joutsenniemi et al., 2006) and by ethnic and cultural differences (Hughes & Waite, 2002; Ye & Chen, 2014).

***Social support as a social determinant of health.*** Social support has been well established as an important influence on health and mental health (Denton et al., 2004; Guruge, Thomson, George, & Chaze, 2015; Skarsater, Dencker, Bergbom, Haggstrom, & Fridlund, 2003; Pan & Carpiano, 2013; Whitley, Kelly, & Lamis, 2016). Four types of social support have been identified as influencing mental health: tangible support, affectionate support, positive social interaction, and emotional/informational support (McCall, Reboussin, & Rapp, 2001). Drawing on CCHS data for 6,316 Canadian adults, Wareham et al. (2007) found that social support in the form of positive interaction was generally associated with an improvement in depression for both men and women. However, gender differences were noted for other forms of social support, with

emotional/informational support and increased reception of affection respectively contributing to an increased depression severity and duration for men, while tangible support was associated with increased depression severity for women. Men are typically socialized to handle negative situations with problem-solving tactics on their own and may be less accepting of displays of affection, while women may feel inadequate or incompetent if they cannot assume the family or employee role without others' help, which may affect the influence of social support on mental health (Wareham et al., 2007).

***Discrimination as a social determinant of health.*** Harrell (2000) defined discrimination as:

a system of dominance, power, and privilege based on racial group designations, rooted in the historical oppression of a group defined or perceived by dominant-group members as inferior, deviant, or undesirable, and occurring in circumstances where member of the dominant group create or accept their societal privilege by maintaining structures, ideology, values, and behavior that have the intent or effect of leaving non-dominant group member relatively excluded from power, esteem, status, and/or equal access to societal resources (p. 43).

Discrimination occurs in circumstances where dominant group members maintain structures, ideologies, values, and behaviors that reinforce their societal privilege and exclude non-dominant group members from power, status, and/or equal access to resources (Harrell, 2000). Experiences of discrimination, such as racism, can take place across individual, group, institutional, and cultural domains (Miller, Yang, Farrell & Lin, 2011), and are experienced through “racism-related life events” (experiencing daily discrimination in school, work, neighborhood, social, and health care settings), “vicarious racism experiences” (observing or hearing about someone’s

experience of prejudice), “daily racism microstressors” (subtle putdowns, degradations, humiliations, or ignoring), “chronic contextual stress” (unequal opportunity in employment or service access, reflecting socio-political and institutional disparities), “collective experiences” (racial stereotype of a cultural group), and “transgenerational transmission” (relaying racist history through generations) (Harrell, 2000, p. 45-46).

Prejudice and discrimination at both the personal and group level are significantly related to increased psychological distress, lowered self-esteem and poorer physical health (Barry & Grilo, 2003; Fisher, Wallace, & Fenton, 2000; Rousseau, Hassan, Moreau, & Thombs, 2011; Rumbaut, 1994; Verkuyten, 1998). Extensive literature has linked racism and discrimination with psychological distress and poor mental health outcomes among non-dominant groups in society. One recent study of 367 Asian American adults (Miller et al., 2011) found that racism-related stress, acculturative stress, and bicultural self-efficacy were significant predictors of mental health status. Another American study of 304 Korean immigrants (Bernstein, Park, Shin, Cho, & Park, 2011) found that higher self-reported exposure to discrimination and lower self-reported language proficiency were associated with higher depressive symptoms.

*Acculturative stress as a social determinant of health.* Stress has been identified as an important determinant of health and mental health (Mikkonen & Raphael, 2010; Wilkinson & Marmot, 2003), and numerous studies have documented the effects of stress on physiological and psychological health outcomes (Hassett, & Clauw, 2011; Noh & Avison, 1996; Schwartz & Meyer, 2010; Van Houdenhove, 2000). Immigrant populations experience particular forms of stress, including stress associated with processes of acculturation, or acculturative stress (Berry, 2005; Concha, Sanchez, Rosa, & Villar, 2013; Redfield, Linton, & Herskovits, 1936). Acculturation occurs “when groups of individuals having different cultures come into continuous

first-hand contact, with subsequent changes in the original cultural patterns of either or both groups” (Redfield, Linton, & Herskovits, 1936, p. 149). Acculturation is a mutual and continuing process of psychological and behavioral change on the part of non-dominant groups following immigration and the dominant host society groups with whom they interact (Berry, 2005, 2008a, 2008b; Graves, 1967; Smith et al., 2007), although contact experiences have a much greater impact on non-dominant group members (Berry 2001).

Changes experienced in pre-migration, migration and post-migration phases present challenges and stressors to immigrants and their families (Bhugra, 2004; Kirmayer et al., 2011), and can be particularly difficult for visible minority groups who are culturally and linguistically different from the dominant recipient society. Individuals, whether young or old, men or women, experience acculturative stress when they encounter difficulties arising from the acculturation process (Kirmayer et al., 2011; Williams & Berry, 1991). These include losses and disruption of familiar life patterns and relationships, loss of status and social support, social isolation, language barriers, unsatisfactory economic integration (e.g. under- or unemployment), incongruent cultural values and practices, intergenerational conflict, racial discrimination, and discrepancy between one’s aspirations and achievements (Bernstein et al., 2011; Bhattacharya, 2011; Bhugra, 2004; Crooks, Hynie, Killian, Giesbrecht, & Castleden, 2011; Gil, Vega, & Dimas, 1994; Hwang et al., 2008; Kirmayer et al., 2011; Lay & Nguyen, 1998; Leu, Walton, & Takeuchi, 2011; Ng & Omariba, 2010; Samuel, 2009). Immigrants who move from socio-centric or collectivist societies to ego-centric or individualistic societies in which cultural values and practices are dissimilar may experience more stress if they lack adequate social support networks (Bhugra, 2004).

Berry (1997) identifies four acculturation strategies throughout the resettlement process: assimilation (non-dominant group members do not retain their original cultural identity and fully adopt dominant group cultural values), separation/segregation (individuals maintain their own cultural identity and avoid contact with mainstream society), integration (immigrants value their home culture while simultaneously seeking to participate in the dominant society), and marginalization (individuals neither maintain their original culture nor have contact with other cultural groups). Studies have reported that assimilation or marginalization approaches are more likely to be linked to poorer mental health (Koneru, Weisman, de Mamani, Flynn, & Betancourt, 2007), although individuals generally face a variety of settlement and acculturation stressors regardless of their approach. In addition, intergenerational conflicts can arise due to contrasting values and norms between parents and their children, who usually experience faster acculturation (Costigan & Koryzma, 2011; Samuel, 2009). This “acculturative family distancing” can result in family stress and dysfunction (Hwang, 2006, p. 397).

**2.3.3 Limitations of the social determinants of health perspective.** The findings of previous research illustrate the importance of examining various determinants of health when studying of population health inequities, considering demographic and socio-structural factors as more important than behavioral factors in determining health outcomes (Denton & Walters, 1999; Denton et al., 2004). However, the limitations of the social determinants of health approach must be acknowledged. First, it fails to consider “a master conceptual scheme” that illuminates the political, economic, and social processes by which the quality of social determinants of health is shaped, resulting in work that lacks a “critical social science perspective” (Raphael, 2006, p. 654). Although the health determinants perspective assumes that population health outcomes can be explained by a number of contributing causes, it does not

highlight the need to understand the root causes of health inequities, including the complex ways in which numerous health determinants intersect and mutually reinforce one another (Hankivsky & Christoffersen, 2008). Second, the social determinants of health framework “does not go far enough in terms of challenging power or the inequalities that go beyond material resources to relations of domination and subordination” (Hankivsky & Christoffersen, 2008, p. 275). The social determinants of health framework has been criticized as providing a model of public health research but not initiating a real change (Raphael & Bryant, 2002), as it does not explain clearly the role of power and privilege or relations of domination and subordination and their impact on immigrant mental health. As a result, the development and implementation of public policies intended to alleviate population health inequalities has been inadequate, as the structures and systems at the root of inequalities remain unaddressed (Raphael, Curry-Stevens, & Bryant, 2008; Hankivsky & Christoffersen, 2008). The intersectionality paradigm, described in the following section, can address some of the limitations of the social determinants of health framework for examining mental health outcomes of visible minority immigrants in Canada.

## **2.4 Intersectionality: A Transformative Research Paradigm for Framing Social Determinants of Immigrant Mental Health**

Despite Canada’s leadership in the realm of population health and continuous efforts to improve the healthcare system at the national level, noticeable health and mental health inequities among different populations persist in the country (Hankivsky & Christoffersen, 2008; Veenstra, 2011). To date, significant gaps remain in fully comprehending the underlying causes of these health disparities, including the complex ways in which social determinants of health relate to and interact with one another (Hankivsky & Christoffersen, 2008). The emerging concept of intersectionality can provide some new insights into understanding inequities and

disparities among diverse populations (Bowleg, 2012; Carbado, Crenshaw, Mays, & Tomlinson, 2013).

Intersectionality was first introduced as a theoretical concept in the seminal work of African American feminist and critical social science researchers such as Kimberlé Williams Crenshaw (1989, 1991, 2010), Patricia Hill Collins (1990, 2000), and bell hooks (1990), who investigated the marginalized experiences of women of colour in relation to sexism and racism (Hallett, 2015). The concept of intersectionality became popularized in response to the limitations of second-wave feminism, suggesting that privileged gender was an identity category that influences an individual's experience (Hankivsky & Christoffersen, 2008). For example, Crenshaw explained that discussions of sexual discrimination focused on the experience of "women" whereas discussions of racial discrimination on being "black", and argued that this linear approach failed to address both the complexity and invisibility of black women's experiences of discrimination. The concept of intersectionality suggests that recognition of multiple social identities, including race, gender, and class, is necessary to understand complex individual experiences (Crenshaw, 1991; Hallett, 2015).

Drawing on these early discussions of intersectionality, a theory of intersectionality has been defined as:

A theory of knowledge that strives to elucidate and interpret multiple and intersecting systems of oppression and privilege. It seeks to disrupt linear thinking that prioritizes any one category of social identity. Instead, it strives to understand what is created and experienced at the intersection of two or more axes of oppression. (Hankivsky & Christoffersen, 2008, p. 275)

Intersectionality considers multiple, interdependent dimensions or aspects of social identity and difference (such as race, ethnicity, indigeneity, gender, class, sexuality, geography, age, disability, migration status, and religion) and forms of systemic oppression (such as racism, classism, sexism, ableism, and homophobia), at both macro and micro levels (Dhamoon & Hankivsky, 2011).

The intersectional approach reflects a paradigmatic shift that has led to changes in understanding the driving forces of health determinants (Lane, Tribe, & Hui, 2010). With respect to the application of the concept of intersectionality in understanding social determinants of health, McPherson and McGibbon (2010) state that three crucial areas must be integrated: 1) traditional health determinants identified by Mikkoman and Raphael (2010); 2) identities related to different forms of oppression, such as racism, sexism, or ageism, and 3) physical location as an SDH. The examination of these aspects of population health and its social determinants involves five key considerations, outlined in detail below: 1) a recognition of the importance of multiple social identity categories, 2) a focus on the intersection rather than “sum” of contributing factors, 3) an examination of the convergence of experiences at micro, meso, and macro levels and associated power relations, 4) a consideration of structural factors, rather than a culture-based perspective, and 5) a focus on social justice.

#### **2.4.1 An intersectional approach to social determinants of health: Key considerations**

Firstly, intersectionality-based research recognizes the importance of multiple social identity categories, rather than presuming that one category is more salient than another in shaping health outcomes (Veenstra, 2011). Research that reduces health inequities to any single determinant or category of identity, reflecting the “essentialization or homogenization of social

categories” (Hankivsky & Christoffersen, 2008, p. 276), would be considered inadequate for understanding the complexities inherent in the production of health disparities. For example, focusing exclusively on gender as a determinant of health “carries the risk of treating all women the same ... overlooking the ways in which economics, race, ability, geography, sexuality and other influences that shape and interact with gender; and diverting attention away from differences among women” (Varcoe, Hankivsky, & Morrow, 2007, p. 18).

Secondly, an intersectional approach challenges the assumption that health outcomes may be caused by the sum of few contributing factors, which is known as an additive approach (Veenstra, 2011). Instead, numerous social categories are at play, and these intersect to produce diverse experiences that, in turn, affect an individual’s health outcomes (Hankivsky & Christoffersen, 2008). Multiple categories or axes of social inequality, pertaining to gender, race, class, sexual orientation, and so on, are mutually constituted and inextricably interwoven, reflecting concepts of “simultaneity” and “multiplicativity” (Veenstra, 2011, p. 2). As a result, certain populations are said to experience “multiple jeopardy” or multiplicative disadvantage of social identities (Harnois, 2015; King, 1988; Rosenfield, 2012; Veenstra, 2011). For example, in 2011, 19.1% of the Canadian population (6,264,800 people) belonged to a visible minority group, and of these, 65.1% were foreign-born and came to Canada as immigrants. South Asian, Chinese, and Black communities represented the three largest visible minority groups, followed by individuals of Filipino, Latin American, Arab, and Southeast or West Asian descent (Statistics Canada, 2013). These diverse visible minority and immigrant groups have language, cultural, and religious backgrounds largely different from those of Caucasian or Canadian-born populations, and particular ethnic or immigrant groups are characterized by a wide diversity of experiences based on their multidimensional social identity categories. Major changes in the

demographic composition of the Canadian population over the past few decades requires an integrated perspective that can more effectively address the multiple and interlocking categories of identity and determinants of health, including gender, age, ethnicity, sexual orientation, religion, immigration status, and SES, among others.

Thirdly, an intersectional perspective examines the convergence of experiences at micro, meso, and macro levels, which involve multiple forms of domination, oppression, and discrimination associated with relations of power (Hankivsky & Christoffersen, 2008; Veenstra, 2011). For example, individual SES is often considered an important factor in understanding health inequities, based on the SDH perspective (Saeed, Xicang, Yawson, Nguah, & Nsawah-Nuamah, 2015; Rosella, Fitzpatrick, Wodchis, Calzavara, Manaon, Goel, 2014). However, this perspective may not fully consider the influence of power relations in a hierarchical capitalist society. An intersectional approach must acknowledge the historically situated political and power structures in society and question who holds power over whom and who benefits from systems of power and domination (Hankivsky & Christoffersen, 2008). In addition to examining the effects of multiple intersecting categories of inequities on diverse groups, this also involves examining aspects of power and inequality at multiple levels and the ways in which these power dynamics impact different populations. This includes analysis of the power relations at the macro level, as policy decisions “create relational inequities in which some individuals and groups in society benefit and others experience further marginalization and oppression” (Hankivsky & Christoffersen, 2008, p. 277). However, interrogation of power relations is “not yet front-and-centre in health determinants analyses” (Hankivsky & Christoffersen, 2008, p. 277).

Fourthly, intersectionality scholars call for a shift from culture-based perspective to a paradigm that considers structural factors in producing health inequities among diverse

populations, including immigrants, based on the view that cultural explanations mask the impact of social inequalities on health outcomes (Viruell-Fuentes, Miranda, & Abdulrahim, 2012). Culture-driven explanations of immigrant health outcomes typically propose that culture shapes individuals' values, attitudes, and health-related behaviours and outcomes (e.g. smoking, drinking, and dietary patterns) (Viruell-Fuentes, Miranda, & Abdulrahim, 2012). Culture-focused researchers frequently identify acculturation as a determinant of immigrant health, with some arguing that integration challenges are associated with poorer health (Shin & Lach, 2014) and others arguing that adaptation to a "western" lifestyle is associated with loss of initial health advantage (Lopez-Class, Castro, & Ramirez, 2011). The use of acculturation as a conceptual model for explaining health differentials, focusing on changes in individual cultural orientation, has been criticized for failing to consider the intersection of socio-structural factors and policies shaping immigrant health, including the socio-economic-political contexts of migration, racism, and domination and the effects of these interacting factors on health outcomes (Viruell-Fuentes, 2007, 2011; Viruell-Fuentes, Miranda, & Abdulrahim, 2012). The use of an acculturation model in public health research is also criticized for "essentializing and homogenizing entire ethnic and/or immigrant groups and perpetuating racial/ethnic stereotypes," blaming individuals for health outcomes as well as looking at culture as "a source of dysfunction" (Viruell-Fuentes, Miranda, & Abdulrahim, 2012, p. 2100).

Finally, intersectionality pursues social justice in the context of social determinants of health. In the field of population health, a focus on social justice involves efforts to mitigate risks of poor health and mental health experiences caused by social inequities in order to and improve the overall health and wellbeing of diverse communities (Hankivsky & Christofferen, 2008). Although social justice initiatives cannot respond to the needs and interests of every party in a

society, the careful development and implementation of strategies involving coordination and collaboration between various social sectors and actors can contribute to forms of social change that more effectively addresses the complexities of multiple disadvantage affecting the health status of diverse communities (Hankivsky & Christofferen, 2008).

#### **2.4.2 Applying intersectionality to population health and mental health research**

Exploring the ways in which immigrant status intersects with race, ethnicity, gender, socio-economic and educational status, sexual orientation, and other axes of inequality is important to better understand variations in health experiences and outcomes. Intersectionality theory can serve as a guiding paradigm in shifting the focus of study from individual-level categories to structural examinations that consider multiple dimensions of identity as well as broader power structures, examining the ways in which these intersect to shape health inequities (Viruell-Fuentes, Miranda, & Abdulrahim, 2012). In recent years, researchers have moved beyond the theoretical construct of intersectionality and have attempted to apply the concept to different areas of research and policy (Carbado, Crenshaw, Mays, & Tomlinson, 2013), including in the field of population health in Canada (Cairney et al., 2014; Kobayashi & Prus, 2011; Veenstra, 2011) and the United States (Bowleg, 2012; Caiola, Docherty, Relf, & Barroso, 2014; Cho, Crenshaw, & McCall, 2013; Griffith, Ellis, & Allen, 2013).

In the United States, intersectionality has been applied to research on physical, mental, and behavioural health in diverse ethno-racial populations, identifying a range of personal, social, and structural determinants of health. Rosenfield (2012), for example, examined the intersecting effects of gender, race, education level, and self-salience (perceived relative importance of the self and others in interpersonal relationships) on mental health and delinquency among racial minority and White Americans, using data from the National

Comorbidity Survey and the Rutgers Health and Human Development Project. Black girls, women, and men reported greater self-salience and lower depression than their White counterparts across different education backgrounds. Black American girls with a higher education level were less likely than White Americans to report depression, whereas black women experienced significantly less depressive symptoms at both higher and lower educational levels. Similar findings were noted for boys with respect to the effect of education level on delinquent behaviours. Among Black youth with lower education levels, girls reported lower self-salience and greater depression than boys, whereas among White youth, girls reported lower self-salience and greater depression at both educational levels. By exploring the intersecting effects of these diverse factors on health outcomes, these findings challenged the “triple jeopardy” theory of the impacts of race, gender and class, and suggested that the consideration of both structural and psychosocial factors is key to understanding the complex daily experiences of racial minorities.

In another American study, Seng and colleagues (2012) examined the mental health status of 619 racial minority and White women according to structural dimensions of inequality (low education and poverty), contextual dimensions of inequality (high crime neighbourhood, racial minority status, and trauma exposure), and interpersonal dimensions of inequality (discrimination experiences and personal characteristics including racial background, nationality, gender, sexual orientation, religion, disability, pregnancy status, and physical appearance). Black women reported the greatest disadvantages in terms of education, income, neighbourhood crime, and trauma exposure as well as reporting higher posttraumatic stress disorder (PTSD) symptoms and lower quality of life. Black and Asian/Pacific Islander women were most likely to identify racial background as the primary reason for discrimination (which was associated with greater

PTSD and lower quality of life), while White and Hispanic women were most likely to identify gender as the primary reason for discrimination. These findings suggest that focusing on a single demographic category, such as race, gender, or class, is not sufficient in accounting for disparities in health outcomes.

In Canada, the application of intersectionality to health research is still at a nascent stage although some recent studies have used this approach to examine health and mental health inequities (Cairney et al., 2014; Kobayashi & Prus, 2011; Veenstra, 2011). Using CCHS data, Kobayashi and Prus (2011) examined health outcomes among immigrant adults in midlife (aged 45 to 64) and later life (65 and older), considering determinants such as country of birth (Canadian and foreign-born), racial origin (white and non-white), length of time in Canada (10 years or less, or 10 or more years), age, gender, education, and household income. Recent midlife male immigrants were the least likely to report fair or poor self-rated health, chronic health conditions, or daily activity limitations, compared to Canadian-born counterparts, although health outcomes were similar for long-term (10 or more years) midlife male immigrants and Canadian-born men. Among older males, recent non-white immigrants were more likely than Canadian-born men to report poor or fair health. Among women, findings were less consistent with the “healthy immigrant effect.” Recent midlife female immigrants were more likely than Canadian-born women to report poor or fair health but were less likely to have a chronic condition. Long-term non-white older female immigrants were similarly disadvantaged after taking into account demographic, socio-economic, and lifestyle factors. These findings suggest that health advantages are particularly strong for recent midlife visible minority immigrant men, whereas older immigrant men and midlife visible minority immigrant women

may experience poorer health status, illustrating the intersecting effects of age, gender, racial background, and immigration status on health outcomes.

In another Canadian study based on CCHS data, Veenstra (2011) investigated the effects of social inequalities on the self-rated health of 90,310 adult respondents aged 25 and older, considering the role of race, gender, class, and sexuality. Additive or non-intersectional analysis (examining the health effects of race, gender, class, and sexual orientation singly, then as a set) indicated that Aboriginal, Asian, and South Asian adults were more likely than their white counterparts to report fair or poor self-rated health, and bisexual adults were more likely than heterosexuals to report fair or poor health. Multiplicative or intersectional analyses (involving interaction terms between inequality variables) indicated that each axis of inequality interacted significantly with at least one other identity dimension. South Asian and homosexual women of low-income status were most likely to report fair or poor health. These findings suggest that focusing on a single identity category or dimension of inequality can lead to misunderstandings about the complex nature of health disparities.

In a third study involving CCHS data, Cairney and colleagues (2014) investigated determinants of mental health service utilization among 1,213 Canadians with mood (major depressive disorder, bipolar disorder) and anxiety disorders (social phobia, panic disorder, agoraphobia), examining the combined effects of visible minority status, gender, age, marital status, parental status, education, income adequacy, and rurality. Only 24% of adults with mood or anxiety disorders reported one or more mental health consultations in the previous year, and women were more likely than men to access services. Young and middle-aged men who were separated or divorced and women of low-income status were more likely to use mental health services. The researcher explained that loss of spousal support for men increases the odds of help

seeking in the formal care sector whereas contact with social services for income inadequacy might facilitate access to mental health services for women. While women may generally be more likely to seek mental health care, intersectional analysis suggest that, rather than reflecting a simple gender difference, interactions with other social identity factors (age, marital status, income level) impact service use.

### **2.4.3 Challenges of using intersectionality and social determinants of health approach in health and mental health research**

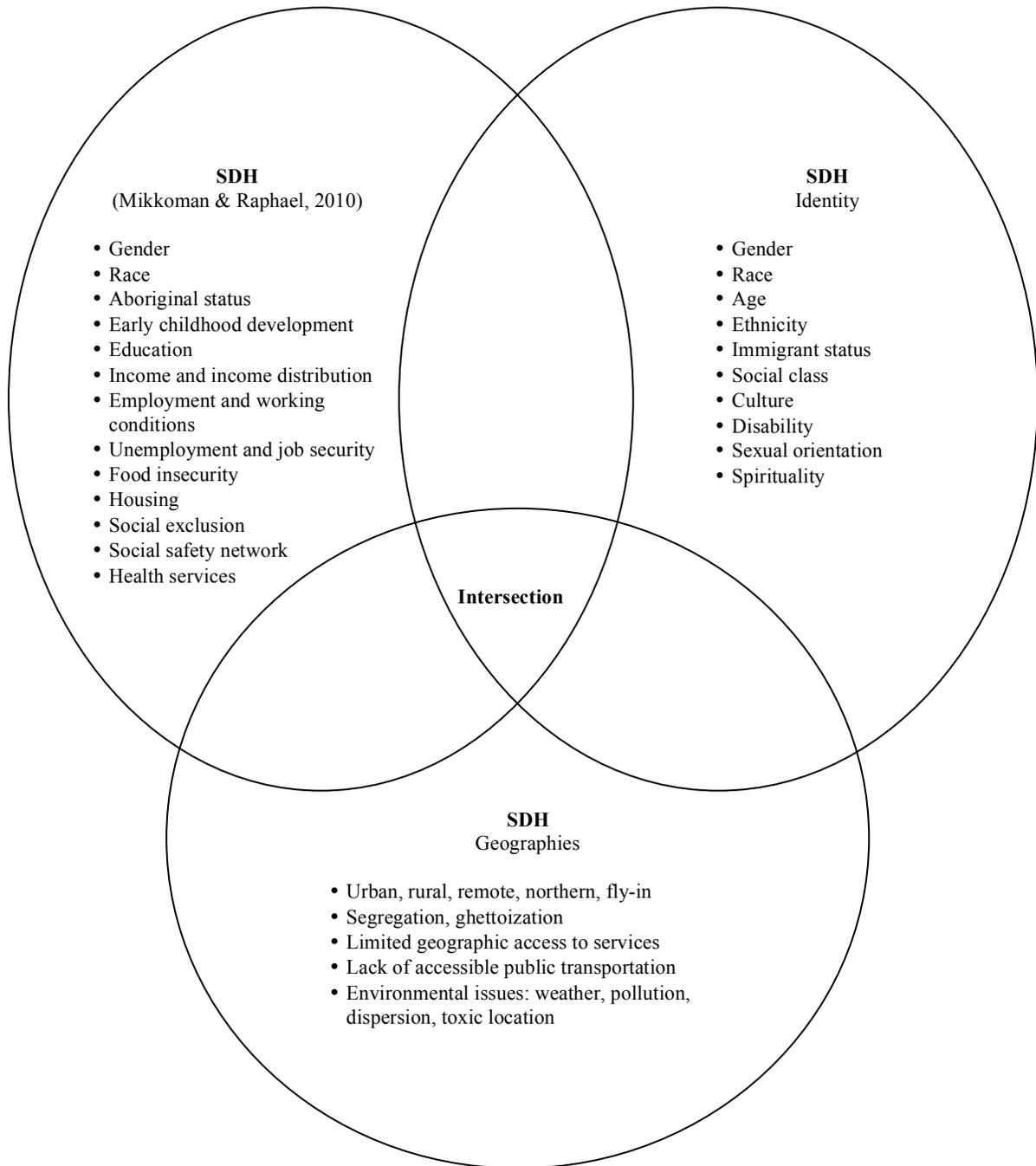
Intersectionality represents a conceptual framework for understanding the intersecting effects of race, gender, socio-economic class, and other marginalizing statuses or dimensions of inequality that influence individuals' life experiences and, in turn, their health and mental health outcomes (Seng et al., 2012). By challenging the dominant concept of double (race and gender) or triple (race, gender and class) jeopardy, the research described above supports the argument that considering the intersection of multiple dimensions of identity can better explain the complex experiences of oppression and subsequent health inequities among diverse groups.

The application of intersectionality as method of analysis in health research is not without challenges. First, it is challenging to determine and prioritize the list of intersecting categories to be included in analysis, as health inequality is a social phenomenon operating at multiple levels (Bauer, 2014; Cairney et al., 2014; Hankivsky & Christoffersen, 2008). Second, intersectionality has been well theorized but has only recently been integrated into empirical health and mental health research (Seng et al., 2012), and very little quantitative research has explicitly used an intersectional framework to study public health disparities in Canada (Cairney et al., 2014; Kobayashi & Prus, 2011; Veenstra, 2011). The lack of replication of intersectionality-informed health studies has impeded a thorough understanding of factors or determinants contributing to

health disparities and inequalities in a society, as well as formulation of effective policies and intervention strategies to address these inequalities (Cairney et al., 2014). Finally, despite the significant demographic shift in the Canadian population associated with increasing immigration, the mental health of visible minority immigrant populations has been an under-researched topic, particularly with respect to the examination of differences in mental health and service use using an intersectionality approach to mental health determinants (Hankivsky & Christoffersen, 2008).

This study aims to address this gap in existing research, and a conceptual framework based on social determinants of mental health through the lens of intersectionality is presented in the following chapter, as it will be applied to examine mental health status and mental health service utilization among visible minority immigrant adults in Canada.

Figure 2. SDH Intersectionality lens for addressing health inequities.



Source: McPherson & McGibbon, 2010, p. 56.

## **Chapter Three: Conceptual Framework**

The review of existing research findings concerning the health and mental health of immigrant populations, including the healthy immigrant effect, mental health service utilization, and social determinants of health, suggest that a comprehensive understanding of the social determinants of immigrant mental health outcomes and service utilization requires an intersectional approach considering the simultaneous and mutually constitutive effects of multiple categories or dimensions of social identity and inequality (Viruell-Fuentes, Miranda, & Abdulrahim, 2012). However, little Canadian research has examined the relationship between social determinants, mental health status, and mental health service utilization among visible minority immigrants using an intersectional lens (Dunn & Dyck, 2000; Hankivsky & Christoffersen, 2008; Veenstra, 2011). Most studies have drawn on exclusionary individually-focused models that consider biomedical or health-related risk behaviours. This approach, however simplifies, discounts, and depoliticizes the diverse micro-, meso-, and macro-level factors and socio-structural processes that shape mental health outcomes and inequalities (Dhamoon & Hankivsky, 2011).

### **3.1 Developing a Conceptual Approach**

The findings of recent research, in Canada and internationally, illustrate the importance of understanding how multi-layered micro-, meso-, and macro-level factors such as gender, age, racial origin, socio-economic status, marital status, social support, and experiences of discrimination intersect to shape immigrant mental health status and patterns of service use (De Maio & Kemp, 2010; Khanlou, 2003, 2008, 2010). A comprehensive and inclusive conceptual approach to studying visible minority immigrant mental health must account not only for multiple factors as variables, but must also consider how and under what circumstances these

different factors may interact to produce mental health outcomes (Bergin, Wells, & Owen, 2008; Khanlou, 2010). Recognizing the importance of such an approach, the current study drew on two key conceptual frameworks, the social determinants of health perspective and the Andersen-Newman model (Andersen & Newman, 1973), considered in the context of intersectionality. This broad conceptual framework was used to understand differences in mental health outcomes and mental health services utilization among visible minority immigrant adults and native-born white adults in Canada.

Using the social determinants of health framework as a guide and drawing on findings of recent research, a number of specific determinants of mental health outcomes were identified for use in the study, representing variables from the 2009-2010 CCHS dataset, the data source used for this study. Selected determinants, outlined in Figure 3, included: age, gender, marital status, racial origin, immigrant status, education level, employment status, annual household income level, length of residency in Canada, and sense of community belonging variables. These were used to predict mental health outcomes represented by self-perceived mental health, self-perceived life stress, and presence of diagnosed mood and anxiety disorders in the context of the social determinants of health and intersectionality (Aglipay, Colman, & Chen, 2013; Chadwick & Collins, 2015; De Maio, & Kemp, 2010; Kim et al., 2010; Muhammad & Gagnon, 2009; Puyat, 2013; Hansson, Tuck, Lurie, & McKenzie, 2012; Stafford, Newbold, & Ross, 2010).

An adapted version of the Andersen-Newman Model of Health Service Utilization (Andersen, 1995; Andersen & Newman, 1973), which also includes health determinants in the context of intersectionality was used to assess mental health service utilization by visible minority immigrant adults and Canadian-born white adults. These predisposing predictors, enabling factors, and need factors were drawn from the 2009-2010 CCHS dataset. Predisposing

factors for service use, outlined in Figure 4, included age, gender, education level, employment status, racial origin, and immigrant status (based on length of residency in Canada). Enabling factors included annual household income, marital status (social support), and sense of community belonging (social support). Need factors included self-perceived mental health, self-perceived life stress, diagnosed mood disorders, and diagnosed anxiety disorders. Use of mental health services as dependent variable was measured by telephone or face-to-face consultations with health care professionals for mental health problems (Statistics Canada, 2011).

Figure 3. Conceptual framework for examining predictors of mental health status among visible minority immigrants and Canadian-born white adults.

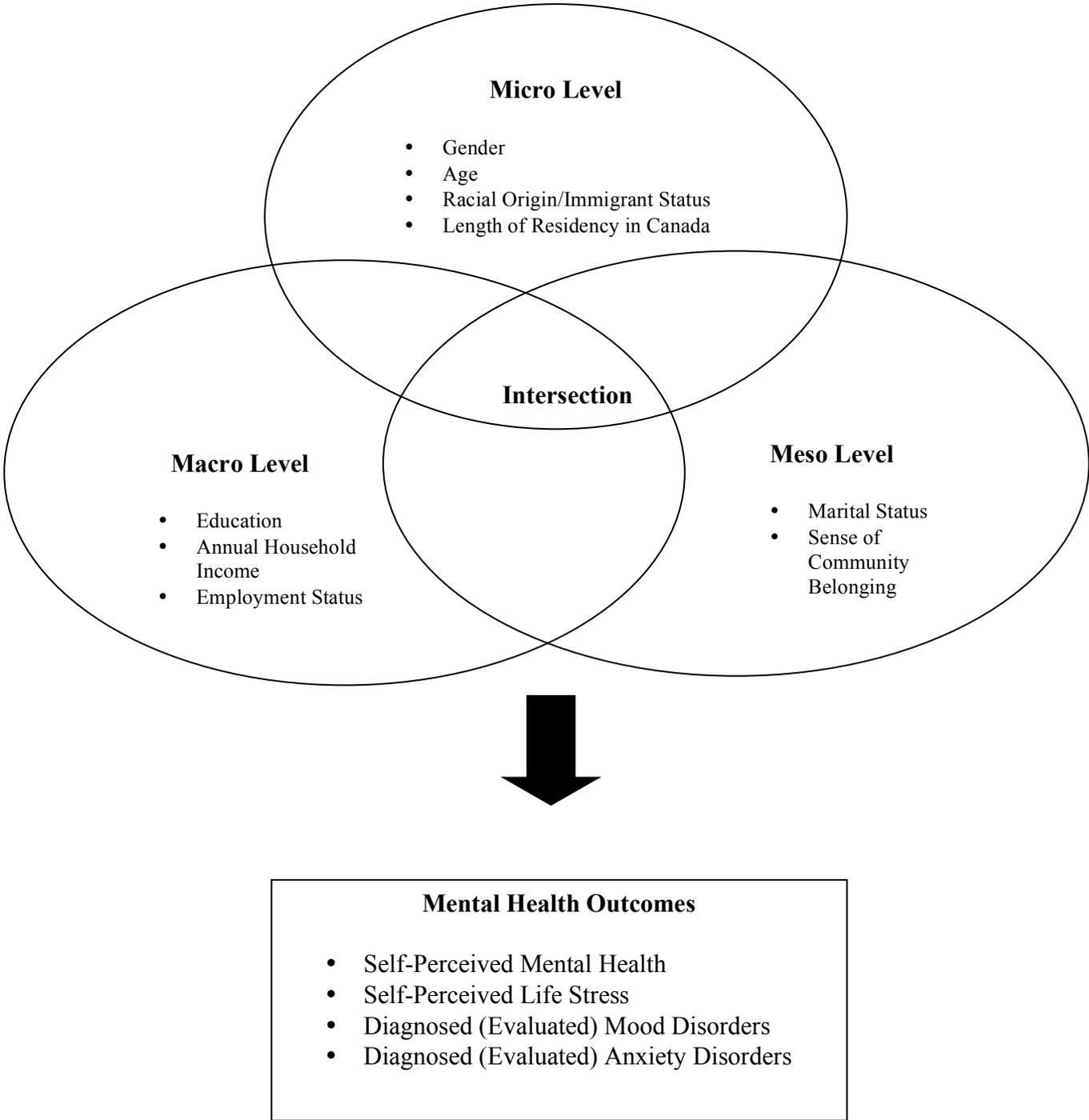
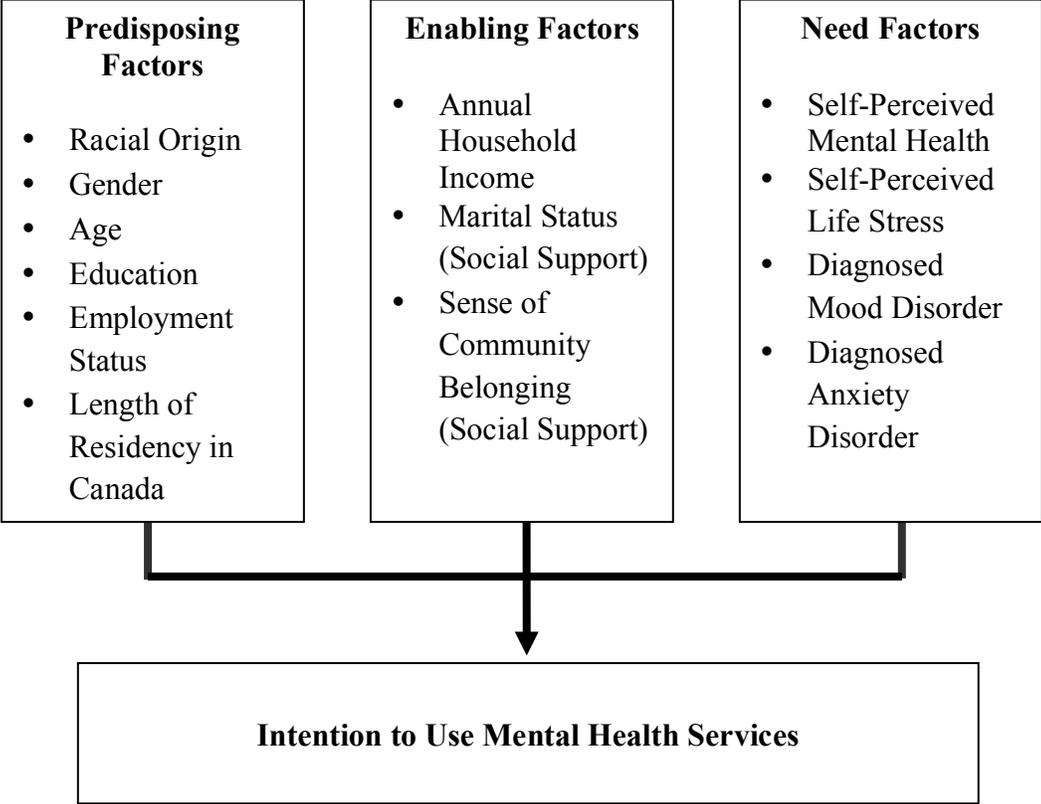


Figure 4. Conceptual framework for examining predictors of mental health service use by visible minority immigrants and Canadian-born white adults.



Source: Adapted from Andersen (1995); Andersen & Newman (1973)

## **Chapter Four: Methodology**

Using the social determinants of health perspective (Blane, Brunner, & Wilkinson, 1996) and Andersen-Newman's (1973; 1995) health service utilization model in the context of intersectionality, this study examined the differences in the mental health status as well as mental health service use between visible minority immigrant adults and Canadian-born white adults in Canada and the social contextual factors associated with these differences. This chapter presents the methodology of the study, including the research questions and hypotheses, research design, data source and collection, conceptualization and operationalization of variables, and methods of data analysis.

### **4.1 Research Questions and Hypotheses**

Based on findings identified during the review of literature on migrant mental health and the conceptual framework presented in the previous chapters, this study addressed three research questions:

**Question 1.** Are there any differences in mental health status and mental health service utilization between visible minority immigrant adults and Canadian-born white adults in Canada?

This study also tested three research hypotheses related to the first research question, which were formulated based on literature review findings and the study's conceptual framework:

**Hypothesis 1.** Visible minority immigrant adults have better mental health and lower mental health service utilization than Canadian-born white adults.

**Hypothesis 2.** Recent visible minority immigrant adults have better mental health and lower mental health service utilization than longer-term visible minority immigrant adults.

**Hypothesis 3.** Visible minority male immigrant adults have better mental health and lower mental health service utilization than visible minority female immigrant adults.

**Question 2.** What are the social contextual factors that explain the mental health status and mental health service utilization in visible minority immigrant adults and Canadian-born white adults?

**Question 3.** How do social contextual factors interact to produce the health status and mental health service utilization in visible minority immigrant adults and Canadian-born white adults?

## **4.2 Research Design: Quantitative Cross-Sectional Survey Design as Method of Inquiry**

Broadly speaking, the main methods of investigation in health research are qualitative, quantitative, and mixed methods (Bowling, 2009). In quantitative health research, researchers attempt to explain an observable phenomenon by collecting numerical data that are analyzed using statistical methods (Given, 2008). One example is the survey method, which can be used “to address descriptive questions, such as what, who, when, and how questions” (Calnan, 2013, p. 192). It aims to describe certain phenomena of interest in the population such as opinions, attitudes, behaviors, or prevalence of health and mental health conditions, as well as to study associations between variables and demonstrate general trends in society (Calnan, 2013). Surveys are generally cross-sectional in nature, as data are collected from study populations at one point in time (Calnan, 2013). Survey methods are often associated with the use of

questionnaires, where data are collected through personal (face-to-face or telephone) interviews or using self-completed questionnaires (through postal delivery, for example) (Calnan, 2013). Study participants are usually asked to recall and report on past health or life events, feelings, attitudes, and behaviors, and therefore these studies are also known as retrospective surveys (Bowling, 2009).

Quantitative survey research methods have been frequently used in immigrant health and mental health studies, both nationally and internationally (De Maio & Kemp, 2010; Hamilton, 2014; Kim et al., 2010; Leu, Walton, & Takeuchi, 2011; Xu & McDonald, 2010). Likewise, the Canadian Community Health Survey (CCHS), an important country-wide population health survey designed and conducted by Statistics Canada on a regular basis, also utilizes quantitative survey design as method of enquiry (Statistics Canada, 2016).

Advantages of using a survey research design in health and mental health research include its efficiency and cost-effectiveness in collecting data from large target populations (Bowling, 2009; Siedlecki, Butler, & Burchill, 2015), such as the CCHS which usually involves more than 100,000 respondents including both local-born and foreign-born Canadians across all provinces (Statistics Canada, 2016).

In addition, one strength of the 2009-2010 CCHS data is the incorporation of sampling weights. That is, in order to make the survey data representative of the entire population, each respondent included in the final sample was given a survey weight to represent his or her contribution to the total population (Statistics Canada, 2011b). In the current study, the sampling weight was applied to compute statistical estimates and make inferences at the population level.

Moreover, quantitative methods, such as surveys, are useful in making comparisons and examining variations between and within study groups due to the ready availability of a wide

range of variables (Calnan, 2013), and can help to identify whether or not a significant relationship exists between the specific variables, and thus to make generalizations about that relationship in the context of a wider population (Nardi, 2005). As this study required mental health data that represented both visible minority immigrant and Canadian-born white adult populations and reflected the significant health differences between and within these two populations across selected socio-demographic variables (Weber, 2006), the 2009-2010 CCHS dataset was deemed most suitable for answering the study's research questions as well as testing the related hypotheses. The CCHS dataset includes multiple readily available social contextual variables such as racial origin, age, gender, marital status, educational level, employment status, household income, length of residence in Canada, and social support, among others (Statistics Canada, 2011a).

However, cross-sectional survey designs cannot establish the direction of a cause-and-effect association (Calnan, 2013). In other words, results drawn from the statistical analyses cannot confirm whether relationships between variables, such as social contextual factors and mental health variables, are causal in nature (Chadwick & Collins, 2015).

### **4.3 Data Source, Data Collection and Sampling**

#### **4.3.1 2009-2010 Canadian Community Health Survey**

The 2009-2010 CCHS was a nationally representative cross-sectional survey that collected information on health status, health care utilization, and health determinants from a large sample of Canadians at one point in time (Statistics Canada, 2011b). The objectives of the survey were to:

Support health surveillance programs by providing health data at the national, provincial and intra-provincial levels; provide a single data source for health research on small

populations and rare characteristics; timely release of information easily accessible to a diverse community of users; and create a flexible survey instrument that includes a rapid response option to address emerging issues related to the health of the population (Statistics Canada, 2011b, p. 4).

In Canada, these datasets have been used extensively by health researchers and professionals to investigate and improve population health and health services, as well as to plan, implement, and evaluate health programs (Ali, 2002; Tiwari & Wang, 2006; Smith et al., 2007; Xu & McDonald, 2010; Pearson, Janz, & Ali, 2013).

The 2009-2010 CCHS sample consisted of 124,188 foreign-born and Canadian-born individuals aged 12 and older living in private dwellings in the ten provinces and three territories, covering roughly 98% of the Canadian population aged 12 and older. Excluded from the survey's coverage were residents living on Indian Reserves or Crown lands, those residing in institutions and certain remote regions, and full-time members of the Canadian Forces (Statistics Canada, 2011b). The CCHS used three sampling frames to select a sample of households: 49.5% of the household sample came from an area frame, 49.5% came from a list frame of telephone numbers, and the remaining 1% came from a Random Digit Dialing (RDD) sampling frame (Statistics Canada, 2011b).

CCHS data was collected through interviews conducted by trained interviewers using computer assisted interviewing (CAI). Approximately half the interviews were conducted in person using computer assisted personal interviewing (CAPI) method and the other half were conducted over the phone using computer assisted telephone interviewing (CATI) (Statistics Canada, 2011). Each CCHS interview lasted an average of 40 to 45 minutes. Between January

2009 and December 2010, over 120,000 valid interviews were conducted, with an overall response rate of 72.3% (Statistics Canada, 2011b).

The specific dataset used in the current study was obtained from the 2009-2010 CCHS public use microdata files (PUMF), a dataset developed from the master files that ensured respondent confidentiality while providing useful regional health data (Statistics Canada, 2011). Before being released for public access, the PUMF must undergo a stringent formal review and approval process by a Statistics Canada executive committee according to the standards put forth by the *Statistics Act* of Canada (Aglipay, Colman, & Chen, 2013; Statistics Canada, 2011b). All data were accessed through the University of Calgary's data library. Using existing sources of data to answer the research questions of interest is referred to as secondary data analysis (Bowling, 2009).

#### **4.3.2 Target population**

The 2009-2010 CCHS constituted a rich source of information on the mental health of both local-born and foreign-born Canadians and had a sample size large enough to enable comparisons of differences in mental health status and mental health care utilization among various sub-populations in the country (Gravel & Beland, 2005; Halli & Anchan, 2005). In this study, the target population for analysis included male and female visible minority immigrant and Canadian-born white respondents aged 18 to 64, as individuals from this adult age group are more likely to encounter similar mental health stressors such as those related to employment and family responsibilities (Xu & McDonald, 2010), and also this age group comprises the majority of the immigration population in Canada (Islam, Khanlou, & Tamim, 2014). The identification of visible minority immigrant and Canadian-born groups was based on respondents' self-reports regarding place of birth and cultural and racial backgrounds.

### **4.3.3 Final sample for analysis**

The 2009-2010 CCHS public use microdata file dataset had a total sample size of 124,188 individuals. Individuals below 18 years old and over 64 years old, as well as white immigrants or non-white Canadian-born individuals, were excluded from the current analysis. The final sample used in the current study consisted of 68,932 survey respondents, including 5,870 visible minority immigrant adults and 63,062 Canadian-born white adults, who represented the comparison group for analysis. The procedure for creating the final sample is summarized in Figure 5.

## **4.4 Conceptualization and Operationalization of Variables**

Employing a multiple perspective, the five dependent variables were included in the study: four variables (self-perceived mental health, self-perceived life stress, diagnosed mood disorders, and diagnosed anxiety disorders) selected from the 2009-2010 CCHS dataset to measure the concept of mental health status and one variable (contacts with health professionals) selected to measure mental health service utilization. The independent variables or predictors included eight demographic and socio-economic variables (gender, age, marital status, immigration status, education, employment status, annual household income, and sense of community belonging) selected to measure the social contextual factors associated with respondents' mental health outcomes and mental health service utilization. As noted in Section 4.2, the cross-sectional nature of the CCHS data meant that results drawn from the statistical analyses could not confirm whether relationships between the social contextual factors and mental health variables were causal in nature (Chadwick & Collins, 2015).

The selection of these dependent and independent variables for this study was based on the review of existing literature on immigrant mental health (Ali, 2002; Chadwick & Collins,

2015; Puyat, 2013; Thomson, Chaze, George, & Guruge, 2015; Xu & McDonald, 2010). The following sections describe how each of these variables were conceptualized and measured.

#### **4.4.1 Mental health status and mental health service utilization as dependent variables**

The first research question in this study considers differences in mental health status and mental health service utilization between visible minority immigrant adults and Canadian-born white adults in Canada. Mental health status, as the key dependent variable, was measured using commonly-used mental health indicators: self-perceived (self-rated) mental health (Chadwick & Collins, 2015; Lou & Beaujot, 2005), self-perceived (self-rated) life stress (Muhammad & Gagnon, 2009; Xu & McDonald, 2010), a diagnosed mood disorder (Pearson, Janz, & Ali, 2013; Puyat, 2013), and a diagnosed anxiety disorder (Aglipay, Colman, & Chen, 2013; Pearson, Janz, & Ali, 2013; Puyat, 2103).

*Self-perceived mental health* refers to the respondent's mental health status based on his or her own judgment. In the CCHS, this was measured by asking respondents a self-assessment question: "In general, would you say your mental health is: Excellent? Very good? Good? Fair? Poor?" (Statistics Canada, 2011a). Answers of "excellent," "very good," or "good" were re-coded as "good perceived mental health" whereas answers of "fair" or "poor" were re-coded as "poor perceived mental health." This dichotomous categorization of answers had been performed in previous Canadian research on immigrant mental health (Puyat, 2013).

*Self-perceived life stress* was measured by asking respondents to rate the question: "Thinking about the amount of stress in your life, would you say that most days are: Not at all stressful? Not very stressful? A bit stressful? Quite a bit stressful? Extremely stressful?" (Statistics Canada, 2011a). Answers of "not all at stressful," "not very stressful," or "a bit

stressful” were re-coded as “not highly stressful in life,” which indicated better mental health status, whereas answers of “quite a bit stressful” or “extremely stressful” were re-coded as “highly stressful in life,” which indicated poorer mental health status. This dichotomous classification of outcome variables had been adopted in previous Canadian research on stress (Muhammad & Gagnon, 2009).

The presence of a *diagnosed mood disorder* was measured by asking respondents the following question: “We’re interested in conditions diagnosed by a health professional. Do you have a mood disorder such as depression, bipolar disorder, mania, or dysthymia?” (Statistics Canada, 2011a). Answers of “Yes” indicated poorer mental health status whereas answers of “No” indicated better mental health status.

The presence of a *diagnosed anxiety disorder* was measured by asking respondents the question: “We’re interested in conditions diagnosed by a health professional. Do you have an anxiety disorder such as a phobia, obsessive-compulsive disorder or a panic disorder?” (Statistics Canada, 2011a). Answers of “Yes” indicated poorer mental health status whereas answers of “No” indicated better mental health status.

*Mental health service utilization* was measured by asking respondents the question: “In the past 12 months, that is, from (date one year ago) to yesterday, have you seen or talked to a health professional about your emotional or mental health (include both face to face and telephone contacts)?” (Statistics Canada, 2011a). Respondents answered either “Yes” or “No.” Previous research has utilized this variable to measure mental health service use among immigrants in Canada (Tiwari & Wang, 2008).

#### 4.4.2 Demographic and socio-economic factors as independent variables

The second and third research questions in this study consider the social contextual factors explaining the mental health status and service utilization in visible minority immigrant adults and Canadian-born white adults, and the ways in which social contextual factors interact to produce the outcomes. To answer these two questions, eight demographic and socio-economic variables from the 2009-2010 CCHS were incorporated in the analysis in order to examine their relationships with the outcome variables of mental health and mental health service utilization. Selected variables included gender, age, marital status, immigration status, education, employment status, annual total household income, and sense of community belonging (Statistics Canada, 2011a). These variables have been frequently used to predict health and mental health outcomes in epidemiological studies (Aglipay, Colman, & Chen, 2013; Chadwicks & Collins, 2015; Xu & McDonald, 2010).

Demographic variables related to mental health status and service use in the two groups were gender, age, marital status, and immigration status. *Gender* was categorized as either “male” or “female.” *Age* groups of “18 to 19 years,” “20 to 24 years,” “25 to 29 years,” “30 to 34 years,” and “40 to 44 years” were re-coded as “younger adults,” whereas age groups of “45 to 49 years,” “50 to 54 years,” “55 to 59 years,” and “60 to 64 years” were re-coded as “middle-aged adults.” (Dunn & Dyck, 2000; Kobayashi & Prus, 2011). *Marital status* indicated as “married” and “common-law” were re-coded as “attached status,” whereas “widowed/separated/divorced” and “single/never married” were re-coded as “unattached status.” For *immigration status*, each respondent was asked to indicate if he or she was an immigrant. Those who answered “Yes” were asked to indicate the length of time they had been in Canada since immigration. Immigrants were categorized as “recent immigrants” if they had immigrated to Canada 0 to 9 years ago and

as “long-term immigrants” if they had immigrated 10 or more years previous to the survey date. Similar dichotomous classification has been used in previous research on immigrant health (Aglipay, Colman, & Chen, 2013; Kobayashi & Prus, 2011; Puyat, 2013). For between-group comparisons, the immigrant group was compared with the Canadian-born group for any differences in outcome variables. For within-group comparisons, recent immigrants were compared with longer-term immigrants.

Socio-economic variables included in the analysis were education, employment status, annual total household income, and sense of community belonging. *Education* level indicated as “less than secondary school graduation” or “secondary school graduation” was re-coded as “secondary school graduation or less,” whereas “some post-secondary” or “post-secondary graduation” was re-coded as “post-secondary school education or more.” *Employment status* indicated as “employee” or “self-employed” was re-coded as “in employment,” whereas “not applicable” or “not stated” were re-coded as “not in employment.” *Total annual household income* referred to respondents’ total household income from all sources in the past 12 months, with answers grouped as “no income or less than \$20,000,” “\$200,000 to \$39,999,” “\$40,000 to \$59,999,” “\$60,000 to \$79,999,” or “\$80,000 or more.” (Statistics Canada, 2011a). Total annual household income indicated as “no income or less than \$20,000” was re-coded as “low-range household income,” “\$200,000 to \$39,999,” “\$40,000 to \$59,999,” and “\$60,000 to \$79,999” were re-coded as “mid-range household income” whereas “\$80,000 or more” was re-coded as “high-range household income.” Similar categorization has been used in previous immigrant mental health research (Aglipay, Colmna, & Chen, 2013). *Sense of belonging to local community* is considered a coping factor linked to the concept of social support (Muhammad & Gagnon, 2009), and consisted of four categories: “very strong,” “somewhat strong,” “somewhat weak,”

and “very weak.” The first two categories were combined and re-coded as “strong sense of community belonging,” whereas last two categories were re-coded as “weak sense of community belonging.” Similar classification has been used in other immigrant mental health research (Islam, Khanlou, & Tamim, 2014).

## **4.5 Data Analysis**

### **4.5.1 Methods of analysis**

Data analysis was conducted using statistical software package SPSS version 23. Characteristics of the overall study sample, visible minority immigrant sample, and Canadian-born white sample were described using descriptive statistics, including frequency distribution.

For research question 1: “Are there any differences in mental health status and mental health service utilization between visible minority immigrant adults and Canadian-born white adults in Canada?” Chi-square tests were performed to determine if mental health status (self-perceived mental health, self-perceived life stress, diagnosed mood disorders, and diagnosed anxiety disorders) and mental health service utilization significantly differed by sex, age, marital status, immigration status, education, employment status, annual household income, and sense of community belonging between visible minority immigrant group and Canadian-born white group as well as within the two groups. A chi-square statistic is used to compare the counts of categorical responses between two or more independent groups, and investigate whether distributions of categorical variables differ from one another (Polit, 2009). In addition, differences in mental health service utilization by mental health needs (having poor self-perceived mental health, high self-perceived life stress, diagnosed mood disorders, and diagnosed anxiety disorders) were also examined between- and within-group using chi-square

tests. A statistically significant result was attained if  $p < 0.05$ . A significance level is conventionally set at  $\alpha = 0.05$  level (5%).

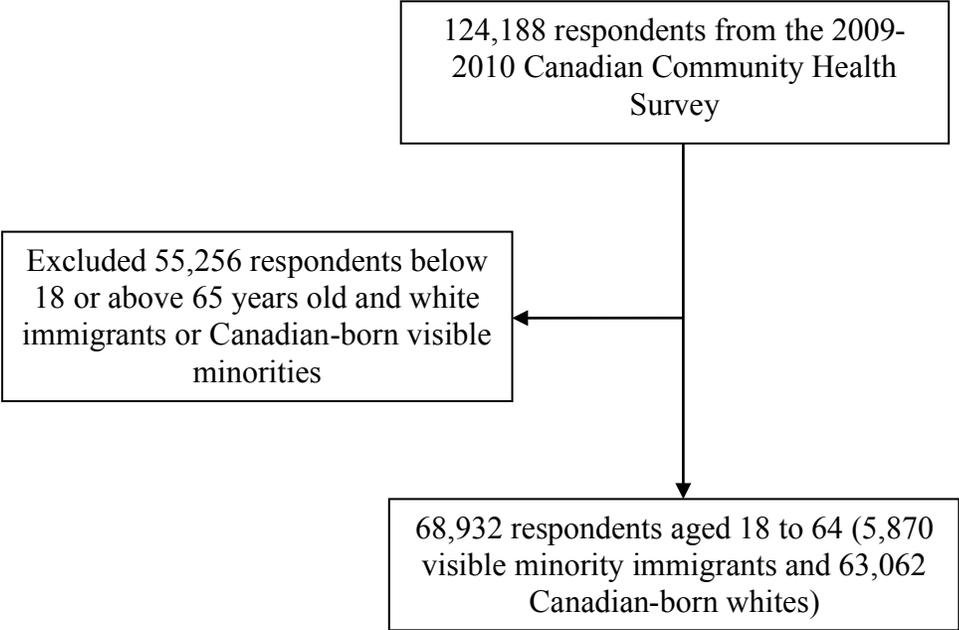
For research question 2: “What are the social contextual factors that explain the mental health status and mental health service utilization in visible minority immigrant and Canadian-born white adults?” Four binary logistic regression models (Hosmer, Lemeshow, & Sturdivant, 2013) were run separately for the visible minority immigrant group and Canadian-born white group in order to examine effects of each independent variable (demographic and socio-economic correlates) on four dichotomous mental health outcomes for the two groups while controlling for other confounding factors. Binary logistic regression model is used to measure the relationship between the categorical outcome variable and one or more predictor variables by estimating the probability of a binary response based on multiple independent variables (Hosmer, Lemeshow, & Sturdivant, 2013). On the other hand, hierarchical logistic regression models were also run separately for the two groups to test predictability of the three sets of independent variables (predisposing, enabling, and need factors) on mental health service use based on the Andersen and Newman (1973)’s model of health service utilization. The predisposing factors (gender, age, education level, employment status, and length of residence in Canada) were the first hierarchical block of correlates entered into the regression model. The enabling factors (annual household income, marital status, and sense of community belonging) were then added as the second variable block. Finally, the mental health need factors (poor self-perceived mental health, high self-perceived life stress, diagnosed mood disorders, and diagnosed anxiety disorders) were added as the third variable block. This hierarchical analysis technique was used to identify effects of the specific order of the predictors as determined by research hypotheses (Kleinbaum, Kupper, Nizam, & Rosenberg, 2013; Lai, 2004). The change in -2 log likelihood

illustrated the significance of each of the variable blocks in the regression model (Lai, 2004). For all analyses of the second research question, significance level was set at  $\alpha = 0.05$  level. Odds ratio (OR) and 95% confidence interval (CI) were calculated. An OR is “a measure of association between an exposure and an outcome,” representing the probability that an outcome will happen given a particular exposure while CI is used “to estimate the precision of the OR” (Szumilas, 2010, p. 227). A large CI indicates a lower degree of accuracy of the OR, whereas a small CI indicates a higher degree of accuracy of the OR (Szumilas, 2010). With respect to binary logistic regression analyses for visible minority immigrant and Canadian-born white adults on four mental health outcomes, those who were female, younger adults, unattached, unemployed, had secondary education level or less, had a low-range annual household income, had a weak sense of community belonging, and were short-term immigrants were examined as the reference groups. An odds ratio of less than one indicates that the study group with that particular predictor variable is less likely than reference group to report a poorer mental health status provided the other variables stayed the same. An odds ratio of greater than one indicates that the study group with that particular predictor variable is more likely than reference group to report a poorer mental health status. With respect to final hierarchical logistic regression analyses of mental health service use by visible minority immigrant and Canadian-born white adults, those who were female, younger adults, had secondary education level or less, were unemployed, were short-term immigrants, had a low-range annual household income, were unattached, had a weak sense of community belonging, with good self-perceived mental health, without high self-perceived life stress, without diagnosed mood disorders, and without diagnosed anxiety disorders were examined as the reference groups, an odds ratio of less than one indicates that the study group with that particular predictor variable is less likely than reference group to report using

mental health service provided the other variables stayed the same. An odds ratio of greater than one indicates that the study group with that particular predictor variable is more likely than reference group to report using mental health service.

For research question 3: “How do social contextual factors interact to produce the mental health status and mental health service utilization in visible minority immigrant and Canadian-born white adults?” Binary logistic regression models with two-way and three-way interactions were used to examine the intersecting (combined) effects of selected social contextual variables on four mental health outcomes and mental health service utilization among visible minority immigrant and Canadian-born white adults. Again, significance level, OR, and 95% CI were reported.

Figure 5. Sampling procedures.



## **Chapter Five: Results**

Drawing on the social determinants of health perspective in the context of intersectionality, this study examined differences in mental health status and service use between visible minority immigrant and Canadian-born white adults. This chapter presents the results for each research question. The first section provides a general description of the study sample's socio-demographic characteristics, followed by three sections describing the findings for each of the research questions. The chapter concludes with a summary of the research findings focusing on visible minority immigrants.

### **5.1 Study Sample Characteristics**

The demographic and socio-economic characteristics of the study sample are summarized in Table 5.1. The unweighted sample consisted of 68,932 respondents, including 63,062 Canadian-born white adults (91.5%) and 5,870 visible minority immigrant adults (8.5%) aged 18 to 64. Results are presented for the weighted sample of 17,861,533 respondents, including 14,705,801 Canadian-born white adults (82.3%) and 3,155,732 visible minority immigrant adults (17.7%). Just over half of all respondents were female (50.3%) and aged 18 to 44 (56.7%). Nearly two-thirds of respondents (64.2%) reported being in an attached (married or common-law) relationship. More than two-thirds of respondents (72%) reported having a post-secondary or higher level of education, and over three quarters (76.7%) were employed full- or part-time or were self-employed. The majority of the respondents had either a mid-range (\$20,000 to \$79,999) or high-range (\$80,000 or more) annual household income (48% and 44.8%, respectively). Nearly two-thirds (62.4%) of respondents reported having a strong sense of belonging to the community.

Table 5.1 also presents the disaggregated socio-demographic characteristics for visible minority immigrant and Canadian-born white adults. Within the visible minority immigrant group, the majority of respondents were female (52.1%), aged 18 to 44 (64.5%), in attached relationships (67.2%), had post-secondary education or higher (74.2%), were employed (71%), had a mid-range household income (59%), had a strong sense of community belonging (64%), and were longer-term immigrants (60.3%). Within the Canadian-born white group, the majority of respondents were male (50.1%), aged 18 to 44 (55.1%), in attached relationships (63.6%), had post-secondary education or higher (71.5%), were employed (77.9%), had a high-range household income (47.7%), and had a strong sense of community belonging (62%). With respect to cross-group differences in socio-demographic characteristics, respondents from the visible minority immigrant group, when compared to the Canadian-born white group, were more likely to be female (52.1% vs. 49.9%), to be of younger age (64.5% vs. 55.1%), to be in attached relationships (67.2% vs. 63.6%), to have post-secondary education or higher (74.2% vs. 71.5%), to be unemployed (29% vs. 22.1%), to have a low- (11.3% vs. 6.4%) or mid-range (59% vs. 45.9%) household income, and to have a strong sense of community belonging (64% vs. 62%).

## **5.2 Research Question 1: Differences in Mental Health Status and Service**

### **Utilization**

This section outlines the findings for the first research question: “Are there any differences in mental health status and mental health service utilization between visible minority immigrant adults and Canadian-born white adults in Canada?” Based on this question, three hypotheses were developed. Bivariate analysis was used to answer the research question and test the related hypotheses. Table 5.2 summarizes the weighted results for visible minority immigrant and Canadian-born white adults’ mental health status and mental health service use.

### **5.2.1 Estimated prevalence rates of four mental health outcomes**

In this study, two self-perceived mental health measures (self-perceived mental health and life stress) and two professional-diagnosed mental health measures (mood and anxiety disorders) were used to represent mental health outcomes. With respect to the overall sample, the vast majority (94.8%) of respondents reported having good (excellent, very good, or good) self-perceived mental health while 5.2% of the respondents reported having poor (fair/poor) self-perceived mental health. Nearly three quarters (74%) of respondents reported low levels of stress in life (not at all, not very, or a bit stressed), while just over one-quarter (26%) reported high stress in life (quite a bit or extremely stressed). Most respondents reported having no diagnosed mood disorder (93%) or diagnosed anxiety disorder (94.6%), while diagnosed mood disorders and anxiety disorders were reported by 7% and 5.4%, respectively. Table 5.2 also presents cross-group differences in estimated prevalence rates of mental health outcomes for visible minority immigrant and Canadian-born white adults. There were no significant differences in rates of poor self-perceived mental health between visible minority immigrant (5.1%) and Canadian-born white adults (5.3%) ( $p=.367$ ). However, the two groups varied significantly on the other three negative mental health outcomes. Visible minority immigrants had a lower rate (23.4%) of high self-perceived life stress compared to Canadian-born white adults (26.6%) ( $p<.001$ ), and reported significantly lower rates of diagnosed mood and anxiety disorders (3.4% and 1.9%) than Canadian-born white adults (7.8% and 6.2%) ( $p<.001$ ).

### **5.2.2 Differences in mental health outcomes by socio-demographic characteristics**

The estimated prevalence rates for the four mental health outcomes according to various demographic and socio-economic factors are presented in Tables 5.3 to 5.10. Cross-group and within-group differences are highlighted below.

*Cross-group and within-group differences in self-perceived mental health.* Visible minority immigrants who were of younger age (4.2% vs. 4.7%), unattached (separated, divorced, widowed, or single) (5.8% vs. 7.7%), unemployed (8.2% vs. 10.7%), and reported low- (8.5% vs. 19.7%) or mid-range (4.1% vs. 5.6%) household income and weak sense of community belonging (6.9% vs. 7.9%) were significantly less likely than their Canadian-born white counterparts to report poor self-perceived mental health ( $p < .05$ ) (see Table 5.3). However, differences for genders, education levels, employed status, and strong sense of community belonging were not significant ( $p > .05$ ). Visible minority immigrants who were middle-aged (6.8% vs. 5.9%), in attached relationships (4.7% vs. 3.9%), and had a high-range household income (4.3% vs. 3%) were significantly more likely than their Canadian-born white counterparts to report poor self-perceived mental health ( $p < .05$ ).

Within the visible minority immigrant group, adults who were middle-aged (6.8% vs. 4.2%), had secondary education or less (6.7% vs. 4.5%), were unemployed (8.2% vs. 3.8%), had a low-range household income (8.5% vs. 4.1% vs. 4.3%), had a weak sense of community belonging (6.9% vs. 3.7%), and were longer-term immigrants (5.7% vs. 4.1%) were significantly more likely than their counterparts to report poor self-perceived mental health (see Table 5.4). However, differences for gender and marital relationship were not significant ( $p > .05$ ). Within the Canadian-born group, adults who were female (5.6% vs. 4.9%), middle-aged (5.9% vs. 4.7%), unattached (7.8% vs. 3.9%), had secondary education or less (6.9% vs. 4.6%), were unemployed (10.7% vs. 3.8%), had a low-range household income (19.7% vs. 5.6% vs. 3%), and had a weak sense of community belonging (7.9% vs. 3.6%) were significantly more likely than their counterparts to report poor self-perceived mental health ( $p < .001$ ).

*Cross-group and within-group differences in self-perceived life stress.* Visible minority immigrants who were male (22.3% vs. 25.2%) or female (24.3% vs. 28%), younger (24.1% vs. 26.1%) or middle-aged (22% vs. 27.2%), in attached relationships (21.6% vs. 26.7%), had secondary education or less (19.6% vs. 22.8%) and post-secondary or higher (24.6% vs. 28.1%), were employed (23.6% vs. 28%), had mid- (21.7% vs. 24.9%) and high-range (25.7% vs. 28.4%) household incomes, and had a weak (26.6% vs. 30.2%) or strong (21.6% vs. 24.3%) sense of community belonging were significantly less likely than their Canadian-born white counterparts to report high self-perceived life stress ( $p < .05$ ) (see Table 5.5). Those who were unattached (26.9% vs. 26.4%), unemployed (22.9% vs. 21.8%), and had a low-range household income (32.4% vs. 31.3%) were more likely to report high self-perceived life stress than their Canadian-born counterparts, although differences were not significant ( $p > .05$ ).

Within the visible minority immigrant group, adults who were unattached (26.9% vs. 21.6%), had post-secondary education or higher (24.6% vs. 19.6%), had a low-range household income (32.4% vs. 21.7% vs. 25.7%), had a weak sense of community belonging (26.6% vs. 21.6%) were significantly more likely than their counterparts to report high self-perceived life stress ( $p < .001$ ) (see Table 5.6). However, differences for gender, age group, employment status, and length of residence in Canada were not significant ( $p > .05$ ). Within the Canadian-born group, adults who were female (28% vs. 25.2%), middle-aged (27.2% vs. 26.1%), had post-secondary education or higher (28.1% vs. 22.8%), were employed (28% vs. 21.8%), had a low-range household income (31.3% vs. 24.9% vs. 28.4%), and had a weak sense of community belonging (30.2% vs. 24.3%) were significantly more likely than their counterparts to report high self-perceived life stress. However, differences for marital status were not significant ( $p > .05$ ).

***Cross-group and within-group differences in diagnosed mood disorders.*** Visible minority immigrants who were male (2.4% vs. 5.7%) or female (4.4% vs. 9.9%), younger (3.1% vs. 7.2%) or middle-aged (4% vs. 8.6%), attached (3% vs. 6.4%) or unattached (4.2% vs. 10.4%), had secondary education or less (4.4% vs. 8.9%) and post-secondary or higher (3.1% vs. 7.4%), were employed (2.4% vs. 5.9%) or unemployed (5.8% vs. 14.5%), had low- (7.4% vs. 22.4%), mid- (2.9% vs. 8.9%), or high-range (1.8% vs. 5.2%) household incomes, and had weak (4.1% vs. 9.8%) or strong (2.8% vs. 6.4%) sense of community belonging were all significantly less likely than Canadian-born white adults to report a diagnosed mood disorder ( $p < .001$ ) (see Table 5.7).

Within the visible minority immigrant group, adults who were female (4.4% vs. 2.4%), unattached (4.2% vs. 3%), had secondary education or less (4.4% vs. 3.1%), were unemployed (5.8% vs. 2.4%), had a low-range household income (7.4% vs. 2.9% vs. 1.8%), had a weak sense of community belonging (4.1% vs. 2.8%), and were longer-term immigrants (4.1% vs. 2.4%) were significantly more likely than their counterparts to report a mood disorder ( $p < .05$ ) (see Table 5.8). However, differences for age were not significant ( $p > .05$ ). Within the Canadian-born group, adults who were female (9.9% vs. 5.7%), middle-aged (8.6% vs. 7.2%), unattached (10.4% vs. 6.4%), had secondary education or less (8.9% vs. 7.4%), were unemployed (14.5% vs. 5.9%), had a low-range household income (22.4% vs. 8.9% vs. 5.2%), and had a weak sense of community belonging (9.8% vs. 6.4%) were significantly more likely than their counterparts to report a mood disorder ( $p < .001$ ).

***Cross-group and within-group differences in diagnosed anxiety disorders.*** Visible minority immigrants who were male (2% vs. 4.3%) or female (1.8% vs. 8%), younger (1.7% vs. 6.3%) or middle-aged (2.4% vs. 6%), attached (1.7% vs. 5%) or unattached (2.3% vs. 8.2%), had

secondary education or less (1.9% vs. 7.3%) and post-secondary or higher (1.9% vs. 5.7%), were either employed (1.5% vs. 4.8%) or unemployed (3% vs. 11.1%), had low- (4.4% vs. 17.1%), mid- (1.4% vs. 6.9%), or high-range (2.1% vs. 4%) household incomes, and had a weak (2.6% vs. 7.8%) or strong (1.4% vs. 5%) sense of community belonging were all significantly less likely than Canadian-born white adults to report a diagnosed anxiety disorder ( $p < .001$ ) (see Table 5.9).

Within the visible minority immigrant group, adults who were unemployed (3% vs. 1.5%), had a low-range household income (4.4% vs. 1.4% vs. 2.1%), had a weak sense of community belonging (2.6% vs. 1.4%), and were longer-term immigrants (2.4% vs. 1.2%) were significantly more likely than their counterparts to report an anxiety disorder ( $p < .01$ ) (see Table 5.10). However, differences for gender, age, marital status, and education level were not significant ( $p > .05$ ). Within the Canadian-born group, adults who were female (8% vs. 4.3%), unattached (8.2% vs. 5%), had secondary education or less (7.3% vs. 5.7%), were unemployed (11.1% vs. 4.8%), had a low-range household income (17.1% vs. 6.9% vs. 4%), and had a weak sense of community belonging (7.8% vs. 5%) were significantly more likely than their counterparts to report an anxiety disorder. However, differences for age were not significant ( $p > .1$ ).

### **5.2.3 Estimated prevalence rates of mental health service use**

As indicated in Table 5.2, 11.6% of all respondents (both visible minority immigrant and Canadian-born white adults) reported having used mental health services in the past 12 months. When stratified by immigrant status, Canadian-born white adults were significantly more likely to have used mental health services in the past year ( $p < .001$ ). Only 5.4% of visible minority immigrant respondents reported having used mental health services in the past year, compared to

12.9% of Canadian-born white adults. When stratified by all socio-demographic variables (see Table 5.11), visible minority immigrants had significantly lower rates of mental health service use than Canadian-born white adults ( $p < .001$ ).

#### **5.2.4 Estimated prevalence rates of mental health service use by mental health status**

The following section presents findings for mental health service use among respondents who reported mental health concerns in terms of poor self-perceived mental health, high self-perceived life stress, diagnosed mood disorders, and diagnosed anxiety disorders. Cross-group and within-group differences in mental health service use stratified by socio-demographic characteristics are highlighted in Tables 5.12 to 5.18.

*Rates of mental health service use by poor self-perceived mental health.* Among all respondents who reported poor self-perceived mental health, 51.2% had used mental health services in the past year (see Table 5.12). When stratified by immigrant status, visible minority immigrant respondents with poor self-perceived mental health (33.3%) were significantly less likely than their Canadian-born white counterparts (54.9%) to have used mental health services ( $p < .001$ ). When stratified by socio-demographic characteristics (see Table 5.13), visible minority immigrants with poor self-perceived mental health were significantly less likely than their Canadian-born white counterparts to have used mental health services ( $p < .05$ ), although differences for those with low-range income were not significant ( $p = .943$ ).

Within the visible minority immigrant group, adults with poor self-perceived mental health who had secondary education or less (22.4% vs. 38.5%), were employed (26.5% vs. 40.2%), had mid- (26.2% vs. 55.7%) or high-range (38.7% vs. 55.7%) household incomes, and had a strong sense of community belonging (25.9% vs. 40.3%) were significantly less likely than their counterparts to have used mental health services ( $p < .05$ ) (see Table 5.14). However,

differences for gender, age, marital status, and length of residence in Canada were not significant ( $p>.1$ ). Within the Canadian-born white group, adults with poor self-perceived mental health who were male (44.7% vs. 63.7%), middle-aged (50.4% vs. 59.6%), had secondary education or less (44.8% vs. 61.2%), were employed (52.2% vs. 58.4%), had a mid-range (52% vs. 56.1%) household income, and had a strong sense of community belonging (51.9% vs. 57.1%) were significantly less likely than their counterparts to have used mental health services. However, differences for marital status were not significant ( $p>.5$ ).

***Rates of mental health service use by high self-perceived life stress.*** For all respondents who reported high self-perceived life stress, only 19.3% had used mental health services in the past 12 months (see Table 5.12). When stratified by immigrant status, visible minority immigrants with high self-perceived life stress (11.1%) were significantly less likely than their Canadian-born white counterparts (20.9%) to have used mental health services ( $p<.001$ ). When stratified by socio-demographic characteristics (see Table 5.13), visible minority immigrants with high self-perceived stress were all significantly less likely than their Canadian-born white counterparts to have used mental health services ( $p<.001$ ).

Within the visible minority immigrant group, adults with high self-perceived life stress who were male (8% vs. 13.6%), attached (9.6% vs. 13.6%), were employed (7.9% vs. 19.1%), had mid- (9.1% vs. 27.3%) or high-range (9.2% vs. 27.3%) household incomes, had a strong sense of community belonging (8.5% vs. 14.3%), and were short-term immigrants (8.4% vs. 12.6%) were significantly less likely than their counterparts to have used mental health services ( $p<.05$ ). However, differences for age and education were not significant ( $p>.05$ ) (see Table 5.15). Within the Canadian-born white group, adults with high self-perceived life stress who were male (14.3% vs. 26.6%), middle-aged (19.8% vs. 21.7%), attached (17.6% vs. 26.8%),

were employed (17.9% vs. 35.3%), had mid- (21.8% vs. 41.2%) or high-range (18% vs. 41.2%) household incomes, and had a strong sense of community belonging (19% vs. 23.2%) were significantly less likely than counterparts to have used mental health services. However, differences for education level were not significant ( $p=.921$ ).

***Rates of mental health service use by diagnosed mood disorders.*** For all respondents who reported a mood disorder, 67% had used mental health services in the past 12 months (see Table 5.12). When stratified by immigrant status, there were no significant differences in the use of mental health services between visible minority immigrant (68.3%) and Canadian-born white (66.9%) respondents with mood disorders ( $p=.580$ ). When stratified by socio-demographic characteristics (see Table 5.16), only visible minority immigrants with mood disorders who were unattached (77.1% vs. 68%) and unemployed (77.5% vs. 67.7%) were significantly more likely than their Canadian-born white counterparts to have used mental health services ( $p<.05$ ).

Within the visible minority immigrant group, adults with mood disorders who were male (52.9% vs. 75.4%), attached (62.5% vs. 77.1%), and employed (60.2% vs. 77.5%) were significantly less likely than their counterparts to have used mental health services ( $p<.05$ ) (see Table 5.17). However, differences for age, education, household income, sense of community, and length of residence were not significant ( $p>.1$ ). Within the Canadian-born white group, adults with mood disorders who were male (59.5% vs. 71%), middle-aged (62.4% vs. 71.5%), had secondary education or less (61.4% vs. 69.6%), and had mid- (65.7% vs. 71.8%) or high-range (66.8% vs. 71.8%) household incomes were significantly less likely than their counterparts to have used mental health services. However, differences for marital status, employment, and sense of community were not significant ( $p>.1$ ).

***Rates of mental health service use by diagnosed anxiety disorders.*** For all respondents who reported an anxiety disorder, 52.5% had used mental health services in the past 12 months (see Table 5.12). When stratified by immigrant status, there were no differences in the use of mental health services between visible minority immigrant (48.4%) and Canadian-born white (52.8%) respondents with anxiety disorders ( $p=.210$ ). When stratified by socio-demographic characteristics (see Table 5.16), only visible minority immigrants with anxiety disorders who had had mid-range household incomes (37% vs. 52%) and a strong sense of community belonging (32.2% vs. 50%) were significantly less likely than their Canadian-born white counterparts to have used mental health services ( $p<.05$ ).

Within the visible minority immigrant group, only adults with anxiety disorders who had a strong sense of community belonging (32.2% vs. 63.9%) were significantly less likely than their counterparts to have used mental health services ( $p=.001$ ) (see Table 5.18). Within the Canadian-born white group, adults with anxiety disorders who were male (47.8% vs. 55.5%), middle-aged (48.6% vs. 56.2%), attached (51.2% vs. 54.8%), had secondary education or less (48.5% vs. 55.2%), were employed (49% vs. 58.8%), had mid- (52% vs. 59.8%) or high-range (49.3% vs. 59.8%) household incomes, and had a strong sense of community belonging (50% vs. 55.7%) were all significantly less likely than their counterparts to have used mental health services ( $p<.05$ ).

### 5.2.5 Hypotheses testing

As mentioned at the beginning of this section, three hypotheses were identified regarding cross-group and within-group differences in mental health outcomes and service use. This section summarizes the results of the hypotheses testing:

***Hypothesis 1: Visible minority immigrant adults have better mental health and lower mental health service utilization than Canadian-born white adults.***

The aggregated findings indicated no significant differences in self-perceived mental health between visible minority immigrant and Canadian-born white adults. However, significant differences were identified between the two groups for the other three mental health outcomes, with visible minority immigrants less likely than their Canadian-born counterparts to report high self-perceived life stress and diagnosed mood or anxiety disorders (see Table 5.2). When stratified by socio-demographic characteristics, visible minority immigrants who were middle-aged, in attached relationships, and had a high-range household income were significantly more likely than their Canadian-born counterparts to report poor self-perceived mental health (see Table 5.3). There were no significant differences in self-perceived life stress between visible minority immigrant and Canadian-born white adults who were unattached, unemployed, and had low-range household incomes (see Table 5.5). Visible minority immigrants of all socio-demographic characteristics were significantly less likely than Canadian-born white adults to report a mood or anxiety disorder (see Tables 5.7 and 5.9).

The aggregated findings showed that visible minority immigrants in general reported significantly lower mental health service utilization than their Canadian-born white counterparts (see Table 5.11). When stratified according to mental health needs, visible minority immigrants with poor self-perceived mental health and high self-perceived life stress were significantly less likely than their Canadian-born counterparts to report using mental health services. However, no significant differences were identified in mental health service use between immigrant and Canadian-born adults with diagnosed mood or anxiety disorders (see Table 5.12). Thus, the first hypothesis was partially supported.

***Hypothesis 2: Recent visible minority immigrant adults have better mental health and lower mental health service utilization than longer-term visible minority immigrant adults.***

The findings showed that recent immigrants were significantly more likely than longer-term immigrants to report better mental health, in terms of good self-perceived mental health and absence of diagnosed mood and anxiety disorders (see Tables 5.4, 5.8, and 5.10). However, there were no significant differences in self-perceived life stress between the two groups (see Table 5.6). When stratified by mental health needs, recent immigrants with high self-perceived life stress were significantly less likely than longer-term immigrants to have used mental health services (see Table 5.15), although there were no significant differences in service use between immigrant and Canadian-born adults with poor self-perceived mental health and diagnosed mood or anxiety disorders (see Tables 5.14, 5.17, and 5.18). Thus, the second hypothesis was partially supported.

***Hypothesis 3: Visible minority male immigrant adults have better mental health and lower mental health service utilization than visible minority female immigrant adults.***

The findings revealed that male immigrants were significantly more likely than female immigrants to report better mental health in terms of absence of diagnosed mood disorders (see Table 5.8), although there were no significant differences in self-perceived mental health, self-perceived life stress, or diagnosed anxiety disorders between the two groups (see Tables 5.4, 5.6, and 5.10). When stratified by mental health needs, male immigrants with high self-perceived life stress and diagnosed mood disorders were significantly less likely than their female counterparts to have used mental health services (see Tables 5.15 and 5.17), although there were no significant differences in service use between male and female immigrants with poor self-

perceived mental health or diagnosed anxiety disorders (see Tables 5.14 and 5.18). Thus, the third hypothesis was partially supported.

**Table 5.1. Socio-demographic characteristics of visible minority immigrant and Canadian-born white respondents aged 18-64 (CCHS 2009-2010)**

Socio-demographic characteristics	All respondents		Visible minority immigrants	Canadian-born white adults	$\chi^2$ (df)	p-value
	N=68,932	Weighted N=17,861,533	Weighted N=3,155,732 (17.7%)	Weighted N=14,705,801 (82.3%)		
Gender						
Female	37,101 (53.8%)	8,981,065 (50.3%)	52.1%	49.9%	20.06(1)	<i>p</i> <0.001
Male	31,831 (46.2%)	8,880,468 (49.7%)	47.9%	50.1%		
Age						
Younger adult (18-44)	35,764 (51.9%)	10,134,426 (56.7%)	64.5%	55.1%	358.10(1)	<i>p</i> <0.001
Middle-aged (45-64)	33,168 (48.1%)	7,727,108 (43.3%)	35.5%	44.9%		
Marital status						
Attached	40,007 (58.2%)	11,455,066 (64.2%)	67.2%	63.6%	58.10(1)	<i>p</i> <0.001
Unattached	28,798 (41.8%)	6,380,351 (35.8%)	32.8%	36.4%		
Education level						
≤Secondary	20,782 (30.3%)	4,979,158 (28%)	25.8%	28.5%	35.01(1)	<i>p</i> <0.001
≥Post-secondary	47,809 (69.7%)	12,796,570 (72%)	74.2%	71.5%		
Employment status						
Employed	50,424 (73.4%)	13,646,093 (76.7%)	71%	77.9%	265.26(1)	<i>p</i> <0.001
Not employed	18,254 (26.6%)	4,143,578 (23.3%)	29%	22.1%		
Annual household income						
Low-range (<\$20,000)	5,431 (9%)	1,110,559 (7.2%)	11.3%	6.4%	1165.63(2)	<i>p</i> <0.001
Mid-range (\$20,000-79,999)	31,267 (52.1%)	7,372,689 (48%)	59%	45.9%		
High-range (>\$80,000)	23,378 (38.9%)	6,879,130 (44.8%)	29.7%	47.7%		
Community belonging						
Strong	44,345 (65.5%)	10,925,077(62.4%)	64%	62%	15.00(1)	<i>p</i> <0.001
Weak	23,332 (34.5%)	6,592,470(37.6%)	36%	38%		
Length of residence in Canada						
Short-term (≤9 years)	--	--	39.7%	--	--	--
Longer-term (≥10 years)			60.3%			

**Table 5.2. Estimated prevalence rates of mental health outcomes and service use for visible minority immigrant and Canadian-born white adults aged 18-64 (CCHS 2009-2010)**

<b>Mental health outcomes</b>	<b>All respondents</b>		<b>Visible minority immigrants</b>	<b>Canadian-born white adults</b>	$\chi^2$ (df)	<b>p-value</b>
	Weighted N	(%)	Weighted (%)	Weighted (%)		
Self-perceived mental health						
Good	16,706,100	94.8	94.9	94.7	0.82(1)	<i>p</i> =0.367
Poor	925,764	5.2	5.1	5.3		
Self-perceived life stress						
Not highly stressful	13,188,403	74	76.6	73.4	54.74(1)	<i>p</i> <0.001
Highly stressful	4,643,034	26	23.4	26.6		
Diagnosed mood disorder						
No mood disorder	16,589,451	93	96.6	92.2	293.97(1)	<i>p</i> <0.001
Has mood disorder	1,258,930	7	3.4	7.8		
Diagnosed anxiety disorder						
No anxiety disorder	16,879,289	94.6	98.1	93.8	352.59(1)	<i>p</i> <0.001
Has anxiety disorder	967,655	5.4	1.9	6.2		
Mental health service use (past 12 months)						
Consulted mental health service	1,628,159	11.6	5.4	12.9	415.01(1)	<i>p</i> <0.001
Not consulted mental health service	12,450,511	88.4	94.6	87.1		

**Table 5.3. Cross-group comparison of self-perceived mental health by socio-demographic characteristics**

Socio-demographic characteristics	Mental health	Visible minority immigrants	Canadian-born white adults	$\chi^2$ (df)	p-value
		N= 5,870 (8.5%) Weighted N= 3,155,732 (17.7%)	N=63,062 (91.5%) Weighted N= 14,705,801 (82.3%)		
Gender					
Male	Good	95.1%	95.1%	0.04(1)	<i>p</i> =0.847
	Poor	4.9%	4.9%		
Female	Good	94.7%	94.4%	1.34(1)	<i>p</i> =0.246
	Poor	5.3%	5.6%		
Age					
Young adult	Good	95.8%	95.3%	4.50(1)	<i>p</i> =0.034
	Poor	4.2%	4.7%		
Middle-aged	Good	93.2%	94.1%	5.02(1)	<i>p</i> =0.025
	Poor	6.8%	5.9%		
Marital status					
Attached	Good	95.3%	96.1%	10.81(1)	<i>p</i> =0.001
	Poor	4.7%	3.9%		
Unattached	Good	94.2%	92.3%	20.55(1)	<i>p</i> <0.001
	Poor	5.8%	7.7%		
Education level					
≤Secondary	Good	93.3%	93.1%	0.08(1)	<i>p</i> =0.772
	Poor	6.7%	6.9%		
≥Post-secondary	Good	95.5%	95.4%	0.45(1)	<i>p</i> =0.501
	Poor	4.5%	4.6%		
Employment status					
Employed	Good	96.2%	96.2%	0.02(1)	<i>p</i> =0.900
	Poor	3.8%	3.8%		
Not employed	Good	91.8%	89.3%	20.77(1)	<i>p</i> <0.001
	Poor	8.2%	10.7%		
Annual household income					
Low-range	Good	91.5%	80.3%	92.02(1)	<i>p</i> <0.001
	Poor	8.5%	19.7%		
Mid-range	Good	95.9%	94.4%	22.88(1)	<i>p</i> <0.001
	Poor	4.1%	5.6%		
High-range	Good	95.7%	97%	14.45(1)	<i>p</i> <0.001
	Poor	4.3%	3%		
Community belonging					
Strong	Good	96.3%	96.4%	0.05(1)	<i>p</i> =0.826
	Poor	3.7%	3.6%		
Weak	Good	93.1%	92.1%	4.81(1)	<i>p</i> =0.028
	Poor	6.9%	7.9%		

**Table 5.4 Within-group comparison of self-perceived mental health by socio-demographic characteristics**

Socio-demographic characteristics	Visible minority immigrants				Canadian-born white adults			
	Good mental health	Poor mental health	$\chi^2$ (df)	p-value	Good mental health	Poor mental health	$\chi^2$ (df)	p-value
Gender								
Male	95.1%	4.9%	0.55(1)	<i>p</i> =0.459	95.1%	4.9%	15.80(1)	<i>p</i> <0.001
Female	94.7%	5.3%			94.4%	5.6%		
Age								
Younger adult (18-44)	95.8%	4.2%	18.63(1)	<i>p</i> <0.001	95.3%	4.7%	43.78(1)	<i>p</i> <0.001
Middle-aged (45-64)	93.2%	6.8%			94.1%	5.9%		
Marital status								
Attached	95.3%	4.7%	3.04(1)	<i>p</i> =0.081	96.1%	3.9%	430.29(1)	<i>p</i> <0.001
Unattached	94.2%	5.8%			92.3%	7.8%		
Education level								
≤Secondary	93.3%	6.7%	11.72(1)	<i>p</i> =0.001	93.1%	6.9%	41.27(1)	<i>p</i> <0.001
≥Post-secondary	95.5%	4.5%			95.4%	4.6%		
Employment status								
Employed	96.2%	3.8%	47.81(1)	<i>p</i> <0.001	96.2%	3.8%	994.74(1)	<i>p</i> <0.001
Not employed	91.8%	8.2%			89.3%	10.7%		
Annual household income								
Low-range	91.5%	8.5%	19.31(1)	<i>p</i> <0.001	80.3%	19.7%	1761.81(1)	<i>p</i> <0.001
Mid-range	95.9%	4.1%			94.4%	5.6%		
High-range	95.7%	4.3%			97%	3%		
Community belonging								
Strong	96.3%	3.7%	30.06(1)	<i>p</i> <0.001	96.4%	3.6%	550.09(1)	<i>p</i> <0.001
Weak	93.1%	6.9%			92.1%	7.9%		
Length of residence in Canada								
Short-term (≤9 years)	95.9%	4.1%	7.86(1)	<i>p</i> =0.005	--	--	--	--
Longer-term (≥10 years)	94.3%	5.7%						

**Table 5.5 Cross-group comparison of self-perceived life stress by socio-demographic characteristics**

Socio-demographic characteristics	Life stress	Visible minority immigrants	Canadian-born white adults	$\chi^2$ (df)	p-value
		N=5,870 (8.5%) Weighted N=3,155,732 (17.7%)	N=63,062 (91.5%) Weighted N=14,705,801 (82.3%)		
Gender					
Male	Not high	77.7%	74.8%	19.78(1)	p<0.001
	High	22.3%	25.2%		
Female	Not high	75.7%	72%	38.59(1)	p<0.001
	High	24.3%	28%		
Age					
Young adults	Not high	75.9%	73.9%	11.79(1)	p=0.001
	High	24.1%	26.1%		
Middle-aged	Not high	78%	72.8%	57.80(1)	p<0.001
	High	22%	27.2%		
Marital status					
Attached	Not high	78.4%	73.3%	81.65(1)	p<0.001
	High	21.6%	26.7%		
Unattached	Not high	73.1%	73.6%	0.55(1)	p=0.460
	High	26.9%	26.4%		
Education level					
≤Secondary	Not high	80.4%	77.2%	16.43(1)	p<0.001
	High	19.6%	22.8%		
≥Post-secondary	Not high	75.4%	71.9%	44.58(1)	p<0.001
	High	24.6%	28.1%		
Employment status					
Employed	Not high	76.4%	72%	66.31(1)	p<0.001
	High	23.6%	28%		
Not employed	Not high	77.1%	78.2%	2.00(1)	p=0.157
	High	22.9%	21.8%		
Annual household income					
Low-range	Not high	67.6%	68.7%	0.58(1)	p=0.448
	High	32.4%	31.3%		
Middle-range	Not high	78.3%	75.1%	27.86(1)	p<0.001
	High	21.7%	24.9%		
High-range	Not high	74.3%	75.6%	8.28(1)	p=0.004
	High	25.7%	28.4%		
Community belonging					
Strong	Not high	78.4%	75.7%	26.19(1)	p<0.001
	High	21.6%	24.3%		
Weak	Not high	73.4%	69.8%	21.24(1)	p<0.001
	High	26.6%	30.2%		

**Table 5.6. Within-group comparison of self-perceived life stress by socio-demographic characteristics**

Socio-demographic characteristics	Visible minority immigrants				Canadian-born white adults			
	Not high stress	High stress	$\chi^2$ (df)	p-value	Not high stress	High stress	$\chi^2$ (df)	p-value
Gender								
Male	77.7%	22.3%	3.31(1)	<i>p</i> =0.069	74.8%	25.2%	66.31(1)	<i>p</i> <0.001
Female	75.7%	24.3%			72%	28%		
Age								
Younger adults	75.9%	24.1%	3.29(1)	<i>p</i> =0.070	73.9%	26.1%	10.80 (1)	<i>p</i> <0.001
Middle-aged	78%	22%			72.8%	27.2%		
Marital status								
Attached	78.4%	21.6%	19.77(1)	<i>p</i> <0.001	73.3%	26.7%	0.99(1)	<i>p</i> =0.321
Unattached	73.1%	26.9%			73.6%	26.4%		
Education level								
≤Secondary	80.4%	19.6%	15.50(1)	<i>p</i> <0.001	77.2%	22.8%	186.29(1)	<i>p</i> <0.001
≥Post-secondary	75.4%	24.6%			71.9%	28.1%		
Employment status								
Employed	76.4%	23.6%	0.36(1)	<i>p</i> =0.548	72%	28%	209.52(1)	<i>p</i> <0.001
Not employed	77.1%	22.9%			78.2%	21.8%		
Annual household income								
Low-range	67.6%	32.4%	31.32(1)	<i>p</i> <0.001	68.7%	31.3%	116.84(1)	<i>p</i> <0.001
Mid-range	78.3%	21.7%			75.1%	24.9%		
High-range	74.3%	25.7%			71.6%	28.4%		
Community belonging								
Strong	78.4%	21.6%	18.07(1)	<i>p</i> <0.001	75.7%	24.3%	266.25(1)	<i>p</i> <0.001
Weak	73.4%	26.6%			69.8%	30.2%		
Length of residence in Canada								
Short-term (≤9 years)	77.9%	22.1%	3.31(1)	<i>p</i> =0.069	--	--	--	--
Longer-term (≥10 years)	75.8%	24.2%			--	--		

**Table 5.7. Cross-group comparison of diagnosed mood disorders by socio-demographic characteristics**

Socio-demographic characteristics	Mood disorder	Visible minority immigrants	Canadian-born white adults	$\chi^2$ (df)	p-value
		N=5,870 (8.5%) Weighted N=3,155,732 (17.7%)	N=63,062 (91.5%) Weighted N=14,705,801 (82.3%)		
Gender					
Male	No	97.6%	94.3%	101.26(1)	p<0.001
	Yes	2.4%	5.7%		
Female	No	95.6%	90.1%	210.18(1)	p<0.001
	Yes	4.4%	9.9%		
Age					
Young adult	No	96.9%	92.8%	155.66(1)	p<0.001
	Yes	3.1%	7.2%		
Middle-aged	No	96%	91.4%	121.98(1)	p<0.001
	Yes	4%	8.6%		
Marital status					
Attached	No	97%	93.6%	121.99(1)	p<0.001
	Yes	3%	6.4%		
Unattached	No	95.8%	89.6%	172.90(1)	p<0.001
	Yes	4.2%	10.4%		
Education level					
≤Secondary	No	95.6%	91.1%	75.62(1)	p<0.001
	Yes	4.4%	8.9%		
≥Post-secondary	No	96.9%	92.6%	215.30(1)	p<0.001
	Yes	3.1%	7.4%		
Employment status					
Employed	No	97.6%	94.1%	166.98(1)	p<0.001
	Yes	2.4%	5.9%		
Not employed	No	94.2%	85.5%	215.89(1)	p<0.001
	Yes	5.8%	14.5%		
Annual household income					
Low-range	No	92.6%	77.6%	154.75(1)	p<0.001
	Yes	7.4%	22.4%		
Mid-range	No	97.1%	91.1%	257.02(1)	p<0.001
	Yes	2.9%	8.9%		
High-range	No	98.2%	94.8%	55.77(1)	p<0.001
	Yes	1.8%	5.2%		
Community belonging					
Strong	No	97.2%	93.6%	154.19(1)	p<0.001
	Yes	2.8%	6.4%		
Weak	No	95.9%	90.2%	133.06(1)	p<0.001
	Yes	4.1%	9.8%		

**Table 5.8. Within-group comparison of diagnosed mood disorders by socio-demographic characteristics**

Socio-demographic characteristics	Visible minority immigrants				Canadian-born white adults			
	No mood disorder	Mood disorder	$\chi^2$ (df)	p-value	No mood disorder	Mood disorder	$\chi^2$ (df)	p-value
Gender								
Male	97.6%	2.4%	17.06(1)	$p<0.001$	94.3%	5.7%	386.86(1)	$p<0.001$
Female	95.6%	4.4%			90.1%	9.9%		
Age								
Younger adult (18-44)	96.9%	3.1%	2.83(1)	$p=0.093$	92.8%	7.2%	47.77(1)	$p<0.001$
Middle-aged (45-64)	96%	4%			91.4%	8.6%		
Marital status								
Attached	97%	3%	5.35(1)	$p=0.021$	93.6%	6.4%	325.98(1)	$p<0.001$
Unattached	95.8%	4.2%			89.6%	10.4%		
Education level								
$\leq$ Secondary	95.6%	4.4%	6.61(1)	$p=0.010$	91.1%	8.9%	41.27(1)	$p<0.001$
$\geq$ Post-secondary	96.9%	3.1%			92.6%	7.4%		
Employment status								
Employed	97.6%	2.4%	40.60(1)	$p<0.001$	94.1%	5.9%	1096.78(1)	$p<0.001$
Not employed	94.2%	5.8%			85.5%	14.5%		
Annual household income								
Low-range	92.6%	7.4%	41.83(1)	$p<0.001$	77.6%	22.4%	1311.09(1)	$p<0.001$
Mid-range	97.1%	2.9%			91.1%	8.9%		
High-range	98.2%	1.8%			94.8%	5.2%		
Community belonging								
Strong	97.2%	2.8%	6.59(1)	$p=0.010$	93.6%	6.4%	239.60(1)	$p<0.001$
Weak	95.9%	4.1%			90.2%	9.8%		
Length of residence in Canada								
Short-term ( $\leq 9$ years)	97.6%	2.4%	11.25(1)	$p=0.001$	--	--	--	--
Longer-term ( $\geq 10$ years)	95.9%	4.1%						

**Table 5.9. Cross-group comparison of diagnosed anxiety disorders by socio-demographic characteristics**

Socio-demographic characteristics	Anxiety disorder	Visible minority immigrants	Canadian-born white adults	$\chi^2$ (df)	p-value
		N=5,870 (8.5%) Weighted N=3,155,732 (17.7%)	N=63,062 (91.5%) Weighted N=14,705,801 (82.3%)		
Gender					
Male	No	98%	95.7%	64.57(1)	p<0.001
	Yes	2 %	4.3%		
Female	No	98.2%	92%	328.33(1)	p<0.001
	Yes	1.8%	8%		
Age					
Young adult	No	98.3%	93.7%	241.83(1)	p<0.001
	Yes	1.7%	6.3%		
Middle-aged	No	97.6%	94%	104.83(1)	p<0.001
	Yes	2.4%	6%		
Marital status					
Attached	No	98.3%	95%	151.16(1)	p<0.001
	Yes	1.7%	5%		
Unattached	No	97.7%	91.8%	204.15(1)	p<0.001
	Yes	2.3%	8.2%		
Education level					
≤Secondary	No	98.1%	92.7%	135.70(1)	p<0.001
	Yes	1.9%	7.3%		
≥Post-secondary	No	98.1%	94.3%	219.27(1)	p<0.001
	Yes	1.9%	5.7%		
Employment status					
Employed	No	98.5%	95.2%	185.39(1)	p<0.001
	Yes	1.5%	4.8%		
Not employed	No	97%	88.9%	241.56(1)	p<0.001
	Yes	3%	11.1%		
Annual household income					
Low-range	No	95.6%	82.9%	140.65(1)	p<0.001
	Yes	4.4%	17.1%		
Mid-range	No	98.6%	93.1%	281.60(1)	p<0.001
	Yes	1.4%	6.9%		
High-range	No	97.9%	96%	21.39(1)	p<0.001
	Yes	2.1%	4%		
Community belonging					
Strong	No	98.6%	95%	200.07(1)	p<0.001
	Yes	1.4%	5%		
Weak	No	97.4%	92.2%	139.82(1)	p<0.001
	Yes	2.6%	7.8%		

**Table 5.10. Within-group comparison of diagnosed anxiety disorders by socio-demographic characteristics**

Socio-demographic characteristics	Visible minority immigrants				Canadian-born white adults			
	No anxiety disorder	Anxiety disorder	$\chi^2$ (df)	p-value	No anxiety disorder	Anxiety disorder	$\chi^2$ (df)	p-value
Gender								
Male	98%	2%	0.29(1)	$p=0.588$	95.7%	4.3%	362.09(1)	$p<0.001$
Female	98.2%	1.8%			92%	8%		
Age								
Younger adult (18-44)	98.3%	1.7%	3.38(1)	$p=0.066$	93.7%	6.3%	2.31(1)	$p=0.129$
Middle-aged (45-64)	97.6%	2.4%			94%	6%		
Marital status								
Attached	98.3%	1.7%	1.66(1)	$p=0.198$	95%	5%	253.43(1)	$p<0.001$
Unattached	97.7%	2.3%			91.8%	8.2%		
Education level								
$\leq$ Secondary	98.1%	1.9%	0.00(1)	$p=0.984$	92.7%	7.3%	53.42(1)	$p<0.001$
$\geq$ Post-secondary	98.1%	1.9%			94.3%	5.7%		
Employment status								
Employed	98.5%	1.5%	15.36(1)	$p<0.001$	95.2%	4.8%	755.65(1)	$p<0.001$
Not employed	97%	3%			88.9%	11.1%		
Annual household income								
Low-range	95.6%	4.4%	23.38(1)	$p<0.001$	82.9%	17.1%	968.02(1)	$p<0.001$
Mid-range	98.6%	1.4%			93.1%	6.9%		
High-range	97.9%	2.1%			96%	4%		
Community belonging								
Strong	98.6%	1.4%	9.11(1)	$p=0.003$	95%	5%	199.44(1)	$p<0.001$
Weak	97.4%	2.6%			92.2%	7.8%		
Length of residence in Canada								
Short-term ( $\leq 9$ years)	98.8%	1.2%	9.54(1)	$p=0.002$	--	--	--	--
Longer-term ( $\geq 10$ years)	97.6%	2.4%						

**Table 5.11. Cross-group comparison of mental health service use by socio-demographic characteristics for all respondents**

Socio-demographic characteristics	Mental health service use	Visible minority immigrants	Canadian-born whites	$\chi^2$ (df)	p-value
		N=5,870 (8.5%) Weighted N=3,155,732 (17.7%)	N=63,062 (91.5%) Weighted N=14,705,801 (82.3%)		
<b>Gender</b>					
Male	Yes	3.6%	8.5%	117.39(1)	<i>p</i> <0.001
	No	96.4%	91.5%		
Female	Yes	7.1%	17.3%	330.25(1)	<i>p</i> <0.001
	No	92.9%	82.7%		
<b>Age</b>					
Young adult	Yes	5.3%	13.8%	300.29(1)	<i>p</i> <0.001
	No	94.7%	86.2%		
Middle-aged	Yes	5.6%	11.8%	118.74(1)	<i>p</i> <0.001
	No	94.4%	88.2%		
<b>Marital status</b>					
Attached	Yes	4.4%	11%	214.17(1)	<i>p</i> <0.001
	No	95.6%	89%		
Unattached	Yes	7.2%	16.2%	194.01(1)	<i>p</i> <0.001
	No	92.8%	83.8%		
<b>Education level</b>					
≤Secondary	Yes	5.1%	10.8%	78.91(1)	<i>p</i> <0.001
	No	94.9%	89.2%		
≥Post-secondary	Yes	5.4%	13.7%	339.77(1)	<i>p</i> <0.001
	No	94.6%	86.3%		
<b>Employment status</b>					
Employed	Yes	3.9%	11.7%	341.46(1)	<i>p</i> <0.001
	No	96.1%	88.3%		
Not employed	Yes	9.3%	17.4%	112.29(1)	<i>p</i> <0.001
	No	90.7%	82.6%		
<b>Annual household income</b>					
Low-range	Yes	14%	27.3%	78.09(1)	<i>p</i> <0.001
	No	86%	72.7%		
Mid-range	Yes	4.2%	13.2%	310.89(1)	<i>p</i> <0.001
	No	95.8%	86.8%		
High-range	Yes	4.4%	11.6%	90.73(1)	<i>p</i> <0.001
	No	95.6%	88.4%		
<b>Community belonging</b>					
Strong	Yes	4.3%	11.5%	270.97(1)	<i>p</i> <0.001
	No	95.7%	88.5%		
Weak	Yes	6.6%	15%	155.55(1)	<i>p</i> <0.001
	No	93.4%	85%		

**Table 5.12. Cross-group comparison of mental health service use by respondents with mental health needs**

<b>Mental health service used</b>	<b>All respondents with mental health needs</b> Weighted (%)	<b>Visible minority immigrant adults</b> Weighted (%)	<b>Canadian-born white adults</b> Weighted (%)	<b><math>\chi^2</math> (df)</b>	<b>p-value</b>
<u>Poor perceived mental health</u>					
Yes	51.2%	33.3%	54.9%	81.72(1)	<i>p</i> <0.001
No	48.8%	66.7%	45.1%		
<u>High perceived life stress</u>					
Yes	19.3%	11.1%	20.9%	106.25(1)	<i>p</i> <0.001
No	80.7%	88.9%	79.1%		
<u>Diagnosed mood disorder</u>					
Yes	67%	68.3%	66.9%	0.31(1)	<i>p</i> =0.580
No	33%	31.7%	33.1%		
<u>Diagnosed anxiety disorder</u>					
Yes	52.5%	48.4%	52.8%	1.58(1)	<i>p</i> =0.210
No	47.5%	51.6%	47.2%		

**Table 5.13. Cross-group comparison of mental health service use by respondents with poor self-perceived mental health and high self-perceived life stress by socio-demographic characteristics**

Socio-demographic characteristics	Visible minority immigrants: Poor mental health Weighted N= 157,369 (17%)	Canadian-born whites: Poor mental health Weighted N= 768,395 (83%)			Visible minority immigrants: High stress Weighted N= 735,582 (15.8%)	Canadian-born whites: High stress Weighted N=3,907,452 (84.2%)		
	Mental health service used (%)		$\chi^2$ (df)	p-value	Mental health service used (%)		$\chi^2$ (df)	p-value
Gender								
Male	36.3%	44.7%	5.61(1)	<i>p</i> =0.018	8%	14.3%	24.78(1)	<i>p</i> <0.001
Female	30.7%	63.7%	106.44(1)	<i>p</i> <0.001	13.6%	26.6%	91.25(1)	<i>p</i> <0.001
Age								
Young adults	33.7%	59.6%	52.04(1)	<i>p</i> <0.001	9.9%	21.7%	94.49(1)	<i>p</i> <0.001
Middle-aged	32.9%	50.4%	29.03(1)	<i>p</i> <0.001	13.5%	19.8%	16.43(1)	<i>p</i> <0.001
Marital status								
Attached	31.1%	54.5%	42.89(1)	<i>p</i> <0.001	9.6%	17.6%	44.32(1)	<i>p</i> <0.001
Unattached	36.7%	55.4%	30.03(1)	<i>p</i> <0.001	13.6%	26.75%	72.76(1)	<i>p</i> <0.001
Education level								
≤Secondary	22.4%	44.8%	32.67(1)	<i>p</i> <0.001	10.2%	20.8%	28.91(1)	<i>p</i> <0.001
≥Post-secondary	38.5%	61.2%	56.47(1)	<i>p</i> <0.001	11.4%	20.9%	75.77(1)	<i>p</i> <0.001
Employment status								
Employed	26.5%	52.2%	53.58(1)	<i>p</i> <0.001	7.9%	17.9%	88.39(1)	<i>p</i> <0.001
Not employed	40.2%	58.4%	29.91(1)	<i>p</i> <0.001	19.1%	35.3%	61.26(1)	<i>p</i> <0.001
Household income								
Low-range	55.7%	56.1%	0.01(1)	<i>p</i> =0.943	27.3%	41.2%	20.22(1)	<i>p</i> <0.001
Mid-range	26.2%	52%	51.22(1)	<i>p</i> <0.001	9.1%	21.8%	86.51(1)	<i>p</i> <0.001
High-range	38.7%	58.8%	11.14(1)	<i>p</i> =0.001	9.2%	18%	23.07(1)	<i>p</i> <0.001
Community belonging								
Strong								
Weak	25.9%	51.9%	51.54(1)	<i>p</i> <0.001	8.5%	19%	78.40(1)	<i>p</i> <0.001
	40.3%	57.1%	24.75(1)	<i>p</i> <0.001	14.3%	23.2%	31.85(1)	<i>p</i> <0.001

**Table 5.14. Within-group comparison of mental health service use by respondents with poor self-perceived mental health (MH) by socio-demographic characteristics**

Socio-demographic characteristics	Visible minority immigrants: Poor MH N=299; Weighted N=157,369			Canadian-born whites: Poor MH N=3,869; Weighted N=768,395		
	Mental health service used N=70 (31.8%) Weighted N=41,060 (33.3%)	$\chi^2$ (df)	p-value	Mental health service used N=1,532 (54.5%) Weighted N=326,554 (54.9%)	$\chi^2$ (df)	p-value
Gender						
Male	36.3%	0.82(1)	<i>p</i> =0.365	44.7%	101.40(1)	<i>p</i> <0.001
Female	30.7%			63.7%		
Age						
Young adults (18-44)	33.7%	0.00(1)	<i>p</i> =0.961	59.6%	24.20(1)	<i>p</i> <0.001
Middle-aged (45-64)	32.9%			50.4%		
Marital status						
Attached	31.1%	0.61(1)	<i>p</i> =0.436	54.5%	0.26(1)	<i>p</i> =0.608
Unattached	36.7%			55.4%		
Education level						
≤Secondary	22.4%	5.55(1)	<i>p</i> =0.018	44.8%	71.22(1)	<i>p</i> <0.001
≥Post-secondary	38.5%			61.2%		
Employment status						
Employed	26.5%	4.58(1)	<i>p</i> =0.032	52.2%	10.83(1)	<i>p</i> =0.001
Not employed	40.2%			58.4%		
Annual household income						
Low-range	55.7%	10.41(2)	<i>p</i> =0.005	56.1%	8.82(2)	<i>p</i> =0.012
Mid-range	26.2%			52%		
High-range	38.7%			58.8%		
Community belonging						
Strong	25.9%	4.77(1)	<i>p</i> =0.029	51.9%	7.25(1)	<i>p</i> =0.007
Weak	40.3%			57.1%		
Length of residence in Canada						
Short-term	28.8%	0.96(1)	<i>p</i> =0.327	--	--	--
Longer-term	35.5%					

**Table 5.15. Within-group comparison of mental health service use by respondents with high self-perceived life stress by socio-demographic characteristics**

Socio-demographic characteristics	Visible minority immigrants: High life stress N=1,375; Weighted N=735,582			Canadian-born whites: High life stress N=15,253; Weighted N=3,907,452		
	Mental health service used N=122 (11.5%) Weighted N=68,244 (11.1%)	$\chi^2$ (df)	p-value	Mental health service used N=2,743 (23.7%) Weighted N=663,642 (20.9%)	$\chi^2$ (df)	p-value
Gender						
Male	8%	8.34(1)	$p=0.004$	14.3%	262.94(1)	$p<0.001$
Female	13.6%			26.6%		
Age						
Young adults (18-44)	9.9%	3.19(1)	$p=0.074$	21.7%	6.35(1)	$p=0.012$
Middle-aged (45-64)	13.5%			19.8%		
Marital status						
Attached	9.6%	4.06(1)	$p=0.044$	17.6%	134.12(1)	$p<0.001$
Unattached	13.6%			26.8%		
Education level						
$\leq$ Secondary	10.2%	0.28(1)	$p=0.599$	20.8%	0.01(1)	$p=0.921$
$\geq$ Post-secondary	11.4%			20.9%		
Employment status						
Employed	7.9%	26.66(1)	$p<0.001$	17.9%	298.29(1)	$p<0.001$
Not employed	19.1%			35.3%		
Annual household income						
Low-range	27.3%	35.89(2)	$p<0.001$	41.2%	206.64(2)	$p<0.001$
Mid-range	9.1%			21.8%		
High-range	9.2%			18%		
Community belonging						
Strong	8.5%	8.72(1)	$p=0.003$	19%	31.02(1)	$p<0.001$
Weak	14.3%			23.2%		
Length of residence in Canada						
Short-term	8.4%	4.49(1)	$p=0.034$	--	--	--
Longer-term	12.6%					

**Table 5.16. Cross-group comparison of mental health service use by respondents with a diagnosed mood disorder and diagnosed anxiety disorder by socio-demographic characteristics**

Socio-demographic characteristics	Visible minority immigrants: Mood disorder	Canadian-born whites: Mood disorder			Visible minority immigrants: Anxiety disorder	Canadian-born whites: Anxiety disorder		
	Weighted N=108,222 (8.60%)	Weighted N=1,150,708 (91.40%)			Weighted N=60,598 (6.3%)	Weighted N=907,058 (93.7%)		
	Mental health service used (%)		$\chi^2$ (df)	p-value	Mental health service used (%)		$\chi^2$ (df)	p-value
Gender								
Male	52.9%	59.5%	1.91(1)	<i>p</i> =0.167	42.7%	47.8%	1.02(1)	<i>p</i> =0.313
Female	75.4%	71%	2.25(1)	<i>p</i> =0.134	55.1%	55.5%	0.00(1)	<i>p</i> =0.995
Age								
Young adults	71.8%	71.5%	0.01(1)	<i>p</i> =0.932	51.7%	56.2%	0.87(1)	<i>p</i> =0.351
Middle-aged	63.1%	62.4%	0.03(1)	<i>p</i> =0.868	44.4%	48.6%	0.73(1)	<i>p</i> =0.392
Marital status								
Attached	62.5%	65.9%	0.87(1)	<i>p</i> =0.351	50.7%	51.2%	0.00(1)	<i>p</i> =0.952
Unattached	77.1%	68%	6.53(1)	<i>p</i> =0.011	45%	54.8%	3.31(1)	<i>p</i> =0.069
Education level								
≤Secondary	60.7%	61.4%	0.03(1)	<i>p</i> =0.862	34.1%	48.5%	3.36(1)	<i>p</i> =0.067
≥Post-secondary	72%	69.6%	0.56(1)	<i>p</i> =0.454	52.2%	55.2%	0.52(1)	<i>p</i> =0.470
Employment status								
Employed	60.2%	66.4%	2.95(1)	<i>p</i> =0.086	45.7%	49%	0.43(1)	<i>p</i> =0.511
Not employed	77.5%	67.7%	7.51(1)	<i>p</i> =0.006	50.8%	58.8%	2.41(1)	<i>p</i> =0.121
Household income								
Low-range	76.2%	71.8%	0.86(1)	<i>p</i> =0.354	66.9%	59.8%	1.05(1)	<i>p</i> =0.306
Mid-range	58.8%	65.7%	3.20(1)	<i>p</i> =0.074	37%	52%	6.52(1)	<i>p</i> =0.011
High-range	63.7%	66.8%	0.20(1)	<i>p</i> =0.658	48.4%	49.3%	0.00(1)	<i>p</i> =0.959
Community belonging								
Strong	70%	66.3%	1.06(1)	<i>p</i> =0.303	32.2%	50%	13.37(1)	<i>p</i> <0.001
Weak	63.8%	67.6%	0.96(1)	<i>p</i> =0.326	63.9%	55.7%	2.62(1)	<i>p</i> =0.106

**Table 5.17. Within-group comparison of mental health service use by respondents with a diagnosed mood disorder by socio-demographic characteristics**

Socio-demographic characteristics	Visible minority immigrants: Mood disorder N=263; Weighted N=108,222			Canadian-born white adults: Mood disorder N=5,675; Weighted N=1,150,708		
	Mental health service used Weighted N= 56,657 (68.3%)	$\chi^2$ (df)	p-value	Mental health service used Weighted N= 579,064 (66.9%)	$\chi^2$ (df)	p-value
Gender						
Male	52.9%	9.07(1)	$p=0.003$	59.5%	55.53(1)	$p<0.001$
Female	75.4%			71%		
Age						
Young adults (18-44)	71.8%	1.51(1)	$p=0.219$	71.5%	38.16(1)	$p<0.001$
Middle-aged (45-64)	63.1%			62.4%		
Marital status						
Attached	62.5%	4.60(1)	$p=0.032$	65.9%	2.10(1)	$p=0.147$
Unattached	77.1%			68%		
Education level						
≤Secondary	60.7%	2.14(1)	$p=0.144$	61.4%	26.47(1)	$p<0.001$
≥Post-secondary	72%			69.6%		
Employment status						
Employed	60.2%	5.99(1)	$p=0.014$	66.4%	0.69(1)	$p=0.406$
Not employed	77.5%			67.7%		
Annual household income						
Low-range	76.2%	3.69(2)	$p=0.158$	71.8%	8.51(2)	$p=0.014$
Mid-range	58.8%			65.7%		
High-range	63.7%			66.8%		
Community belonging						
Strong	70%	0.78(1)	$p=0.378$	66.3%	0.79(1)	$p=0.375$
Weak	63.8%			67.6%		
Length of residence in Canada						
Short-term	66.6%	0.16(1)	$p=0.689$	--	--	--
Longer-term	69.2%					

**Table 5.18. Within-group comparison of mental health service use by respondents with a diagnosed anxiety disorder by socio-demographic characteristics**

Socio-demographic characteristics	Visible minority immigrants: Anxiety disorder N=156; Weighted N=60,598			Canadian-born whites adults: Anxiety disorder N=4,310; Weighted N=907,058		
	Mental health service used Weighted N=23,467 (48.4%)	$\chi^2$ (df)	p-value	Mental health service used Weighted N=371,675 (52.8%)	$\chi^2$ (df)	p-value
Gender						
Male	42.7%	2.01(1)	$p=0.156$	47.8%	16.71(1)	$p<0.001$
Female	55.1%			55.5%		
Age						
Young adults (18-44)	51.7%	0.50(1)	$p=0.482$	56.2%	17.54(1)	$p<0.001$
Mid age adults (45-64)	44.4%			48.6%		
Marital status						
Attached	50.7%	0.35(1)	$p=0.553$	51.2%	3.98(1)	$p=0.046$
Unattached	45%			54.8%		
Education level						
$\leq$ Secondary	34.1%	2.24(1)	$p=0.135$	48.5%	12.63(1)	$p<0.001$
$\geq$ Post-secondary	52.2%			55.2%		
Employment status						
Employed	45.7%	0.30(1)	$p=0.586$	49%	28.47(1)	$p<0.001$
Not employed	50.8%			58.8%		
Annual household income						
Low-range	66.9%	4.26(2)	$p=0.119$	59.8%	14.00(2)	$p=0.001$
Mid-range	37%			52%		
High-range	48.4%			49.3%		
Community belonging						
Strong	32.2%	10.77(1)	$p=0.001$	50%	9.33(1)	$p=0.002$
Weak	63.9%			55.7%		
Length of residence in Canada						
Short-term	50.2%	0.06(1)	$p=0.807$	--	--	--

Longer-term

47.7%

---

## **5.3 Research Question 2: Correlates of Mental Health Outcomes and Service**

### **Utilization**

This section outlines the findings for the second research question: “What are the social contextual factors that explain the mental health status and mental health service utilization in visible minority immigrant adults and Canadian-born white adults?” Binary logistic regression analysis was performed separately for each group to answer the question pertaining to mental health status and hierarchical logistic regression analysis was performed separately for each group to answer the question pertaining to mental health service use. Tables 5.19 to 5.24 present the weighted results for the specific social contextual factors associated with the four negative mental health outcomes (poor self-perceived mental health, high self-perceived life stress, diagnosed mood disorders, and diagnosed anxiety disorders) and service use for visible minority immigrant and Canadian-born white adults.

#### **5.3.1 Correlates of poor self-perceived mental health**

For visible minority immigrant adults, employed status (OR=.463; 95% CI:.341-.629), mid- (OR=.525; 95% CI:.353-.780) or high-range (OR=.51; 95% CI:.318-.822) household income, and strong sense of community belonging (OR=.472; 95% CI:.356-.625) were significantly negatively associated with poor self-perceived mental health (see Table 5.19). However, longer-term immigrants were 2.1 times more likely to report poor self-perceived mental health (OR=2.167; 95% CI:1.521-3.088). For Canadian-born white adults, attached marital status (OR=.687; 95% CI:.631-.748), post-secondary education or higher (OR=.869; 95% CI:.798-.945), employed status (OR=.478; 95% CI:.439-.521), mid- (OR=.386; 95% CI:.346-.431) or high-range (OR=.249; 95% CI:.218-.284) household income, and strong sense of community belonging (OR=.463; 95% CI:.428-.501) were significantly negatively associated

with poor self-perceived mental health. However, middle-age (OR=1.060; 95% CI:.981-1.147) was significantly positively associated with poor self-perceived mental health.

### **5.3.2 Correlates of high self-perceived life stress**

For visible minority immigrant adults, male gender (OR=.868; 95% CI:.756-.996), middle age (OR=.825; 95% CI:.705-.965), attached status (OR=.843; 95% CI:.724-.982), mid- (OR=.590; 95% CI:.474-.735) or high-range (OR=.699; 95% CI:.546-.895) household income, and strong sense of community belonging (OR=.801; 95% CI:.696-.922) were significantly negatively associated with high self-perceived life stress (see Table 5.20). Post-secondary education or higher (OR=1.340; 95% CI:1.129-1.591) and being longer-term immigrant status (OR=1.315; 95% CI:1.122-1.541) were significantly positively associated with high self-perceived life stress. For Canadian-born white adults, male gender (OR=.825; 95% CI:.794-.857), mid- (OR=.626; 95% CI:.576-.679) or high-range (OR=.721; 95% CI:.662-.785) household income, and strong sense of community belonging (OR=.724; 95% CI:.696-.753) were significantly negatively associated with high self-perceived life stress. Middle age (OR=1.133; 95% CI:1.090-1.179), post-secondary education or higher (OR=1.263; 95% CI:1.207-1.322), and employed status (OR=1.534; 95% CI:1.454-1.618) were significantly positively associated with high self-perceived life stress.

### **5.3.3 Correlates of diagnosed mood disorders**

For visible minority immigrant adults, male gender (OR=.645; 95% CI:.455-.913), employed status (OR=.576; 95% CI:.399-.832), mid (OR=.391; 95% CI:.252-.607) or high-range (OR=.253; 95% CI:.142-.452) household income, and strong sense of community belonging (OR=.708; 95% CI:.504-.997) were significantly negatively associated with having a diagnosed mood disorder (see Table 5.21). However, longer-term immigrants (OR=1.941; 95% CI:1.280-

2.944) were significantly more likely to report a diagnosed mood disorder. For Canadian-born white adults, male gender (OR=.569; 95% CI:.532-.608), attached status (OR=.746; 95% CI:.696-800), employed status (OR=.510; 95% CI:.474-.547), mid- (OR=.473; 95% CI:.429-523) or high-range (OR=.329; 95% CI .294-.369) household income, and strong sense of community belonging (OR=.681; 95% CI:.638-.726) were significantly negatively associated with having a diagnosed mood disorder, while middle age (OR=1.257; 95% CI:.1.177-1.342) was significantly positively associated with reporting a diagnosed mood disorder.

#### **5.3.4 Correlates of diagnosed anxiety disorders**

For visible minority immigrant adults, employed status (OR=.560; 95% CI:.349-.899), mid- (OR=.317; 95% CI:.178-.566) or high-range (OR=.493; 95% CI:.256-.948) household income, and strong sense of community belonging (OR=.639; 95% CI:.420-.974) were significantly negatively associated with having a diagnosed anxiety disorder (see Table 5.22). However, longer-term immigrants (OR=2.276; 95% CI:1.318-3.929) were significantly more likely to report a diagnosed anxiety disorder. For Canadian-born white adults, male gender (OR=.529; 95% CI:.491-.570), attached status (OR=.832; 95% CI:.770-.900), employed status (OR=.548; 95% CI:.506-.594), mid- (OR=.480; 95% CI:.430-.536) or high-range (OR=.323; 95% CI:.258-.367) household income, and strong sense of community belonging (OR=.661; 95% CI:.615-.711) were significantly negatively associated with having a diagnosed anxiety disorder.

#### **5.3.5 Correlates of mental health service use**

Hierarchical logistic regression analysis was performed separately for visible minority immigrant and Canadian-born white adults to identify factors associated with mental health service use.

*Correlates of service use for visible minority immigrant adults.* Table 5.23 presents analysis results for visible minority immigrant adults. In Model 1, Block 1 predisposing factors (gender, age, education level, employment status, and length of residence in Canada) were entered into the hierarchical regression model as the first step. Gender, employment status, and length of residence in Canada were identified as significant predictors of mental health service use. For visible minority immigrant adults, male gender (OR=.591; 95% CI:.433-.807) and employed status (OR=.399; 95% CI:.293-.544) were significantly negatively associated with service use, while longer-term immigrant status was positively associated with service use (OR=1.696; 95% CI:1.200-2.399). A -2 Log likelihood of 1413.78 (df=5; p<.001) was reported for Model 1.

In Model 2, Block 2 enabling factors (household income, marital status, and sense of community belonging) were added to the regression model while controlling for the predisposing variables. The effects of gender, employment status, and length of residence in Canada remained, and post-secondary education or higher was also positively associated with mental health service use (OR=1.466; 95% CI:1.008-2.134). Among the enabling factors, household income and sense of community belonging were identified as significant predictors of mental health service use. For visible minority immigrant adults, mid- (OR=.304; 95% CI:.204-.453) and high-range (OR=.331; 95% CI:.205-.537) household income and strong sense of community belonging (OR=.683; 95% CI:.504-.924) were significantly negatively associated with service use. The -2 Log likelihood dropped to 1369.44 (df=9; p<.001) for Model 2. There was a statistically significant enabling factors' effect on mental health service use when controlling for predisposing factors (A change in -2 Log likelihood=44.34; df=4; p<.001).

In Model 3, Block 3 need factors (poor self-perceived mental health, high self-perceived life stress, diagnosed mood disorder, and diagnosed anxiety disorder) were added to the regression model as final block, while controlling for predisposing and enabling variables. The effects of education level and sense of community belonging disappeared, while all four mental health need factors were identified as significant predictors for mental health service use among visible minority immigrant adults: poor self-perceived mental health (OR=5.817; 95% CI:3.523-9.607), high self-perceived life stress (OR=2.335; 95% CI:1.614-3.380), diagnosed mood disorder (OR=28.240; 95% CI:16.757-47.593), and diagnosed anxiety disorder (OR=3.634; 95% CI:1.766-7.475). The -2 Log likelihood was further reduced to 998.40 (df=13; p<.001) for Model 3. There was a statistically significant need factors' effect on mental health service use when controlling for predisposing and enabling factors (A change in -2 Log likelihood=371.04, df=4, p<.001).

*Correlates of service use for Canadian-born white adults.* Table 5.24 presents regression analysis results for Canadian-born white adults. In Model 1, Block 1 predisposing factors (gender, age, education level, and employment status) were entered into the hierarchical regression model as the first step. All four variables were identified as significant predictors of mental health service use. For Canadian-born white adults, male gender (OR=.454; 95% CI:.427-.482), middle age (OR=.784; 95% CI:.738-.832), and employed status (OR=.607; 95% CI:.567-.650) were significantly negatively associated with service use, while higher education (OR=1.130; 95% CI:1.220-1.405) was significantly positively associated with service use. A -2 Log likelihood of 30308.95 (df= 4; p< .001) was reported for Model 1.

In Model 2, Block 2 enabling factors (household income, marital status, and sense of community belonging) were added to the regression model while controlling for the predisposing

variables. The effects of gender, age, education level, and employment status all remained, and annual household income, marital status, and sense of community belonging were identified as significant predictors of mental health service use. For Canadian-born white adults, mid- (OR=.484; 95% CI:.435-.539) and high-range (OR=.472; 95% CI:.421-.530) household income, attached status (OR=.731; 95% CI:.686-.780), and strong sense of community belonging (OR=.783; 95% CI:.738-.831) were significantly negatively associated with service use. The -2 Log likelihood dropped to 29869.30 (df=8;  $p<.001$ ) for Model 2. There was a statistically significant enabling factors' effect on mental health service use when controlling for predisposing factors (A change in -2 Log likelihood=439.65; df=4;  $p<.001$ ).

In Model 3, Block 3 need factors (poor self-perceived mental health, high self-perceived life stress, diagnosed mood disorder, and diagnosed anxiety disorder) were added to the regression model as final block, while controlling for predisposing and enabling variables. The effects of employment status, household income, and sense of community belonging became insignificant, while all four mental health need factors were identified as significant predictors for mental health service use among Canadian-born white adults: poor self-perceived mental health (OR=2.818; 95% CI:2.482-3.199), high self-perceived life stress (OR=1.706; 95% CI:1.590-1.832), diagnosed mood disorder (OR=12.291; 95% CI:11.168-13.527), and diagnosed anxiety disorder (OR=3.384; 95% CI:3.031-3.777). The -2 Log likelihood was further reduced to 23861.14 (df=12;  $p<.001$ ) for Model 3. There was a statistically significant need factors' effect on mental health service use when controlling for predisposing and enabling factors (A change in -2 Log likelihood=6,008.16, df=4,  $p<.001$ ).

In summary, hierarchical logistic regression analysis for visible minority immigrant group showed that the predisposing factors of male gender and employed status and the enabling factor of mid- or high-range household income were significantly negatively associated with mental health service use, while the need factors of poor self-perceived mental health, high self-perceived life stress, mood disorders, and anxiety disorders were significantly positively associated with mental health service use. For Canadian-born white group, the predisposing factors of male gender and middle-age and the enabling factors of mid-range household income and attached relationship status were significantly negatively associated with mental health service use, while the predisposing factor of post-secondary or higher education level and the need factors of poor self-perceived mental health, high self-perceived life stress, mood disorders and anxiety disorders were significantly positively associated with mental health service use.

**Table 5.19. Multivariate logistic regression analyses for visible minority immigrant and Canadian-born whites adults with poor self-perceived mental health**

Socio-demographic characteristics	Visible minority immigrants		Canadian-born white adults	
	OR (95% CI)	p-value	OR (95% CI)	p-value
Gender				
Male <sup>a</sup>	.951 (.716-1.263)	<i>p</i> =0.728	.943 (.872-1.020)	<i>p</i> =0.142
Age				
Middle-aged <sup>b</sup>	1.216 (.893-1.657)	<i>p</i> =0.215	1.240 (1.144-1.343)	<i>p</i> <0.001
Marital status				
Attached <sup>c</sup>	.888 (.650-1.213)	<i>p</i> =0.454	.687 (.631-.748)	<i>p</i> <0.001
Education level				
≥Post-secondary <sup>d</sup>	.921 (.670-1.266)	<i>p</i> =0.613	.869 (.798-.945)	<i>p</i> =0.001
Employment status				
Employed <sup>e</sup>	.463 (.341-.629)	<i>p</i> <0.001	.478 (.439-.521)	<i>p</i> <0.001
Annual household income				
Mid-range <sup>f</sup>	.525 (.353-.780)	<i>p</i> =0.001	.386 (.346-.431)	<i>p</i> <0.001
High-range <sup>f</sup>	.511 (.318-.822)	<i>p</i> =0.006	.249 (.218-.284)	<i>p</i> <0.001
Sense of community belonging				
Strong <sup>g</sup>	.472 (.356-.625)	<i>p</i> <0.001	.463 (.428-.501)	<i>p</i> <0.001
Length of residence in Canada				
Longer-term (≥10 years) <sup>h</sup>	2.167 (1.521-3.088)	<i>p</i> <0.001	--	--
-2 log likelihood	1616.22		20198.61	
Change of -2 log likelihood; df	95.23; 9		2008.16; 8	
p-value	<i>p</i> <0.001		<i>p</i> <0.001	

*Note.* Reference groups: (a) female, (b) younger adult, (c) unattached, (d) ≤secondary, (e) not employed, (f) low-range, (g) weak, (h) short-term (≤9 years)

**Table 5.20. Multivariate logistic regression analyses for visible minority immigrant and Canadian-born whites adults with high self-perceived life stress**

<b>Socio-demographic characteristics</b>	<b>Visible minority immigrants</b>		<b>Canadian-born white adults</b>	
	OR (95% CI)	p-value	OR (95% CI)	p-value
Gender				
Male <sup>a</sup>	.868 (.756-.996)	<i>p</i> =0.044	.825 (.794-.857)	<i>p</i> <0.001
Age				
Middle-aged <sup>b</sup>	.825 (.705-.965)	<i>p</i> =0.016	1.133 (1.090-1.179)	<i>p</i> <0.001
Marital status				
Attached <sup>c</sup>	.843 (.724-.982)	<i>p</i> =0.028	.975 (.934-1.018)	<i>p</i> =0.255
Education level				
≥Post-secondary <sup>d</sup>	1.340 (1.129-1.591)	<i>p</i> =0.001	1.263 (1.207-1.322)	<i>p</i> <0.001
Employment status				
Employed <sup>e</sup>	1.053 (.892-1.243)	<i>p</i> =0.542	1.534 (1.454-1.618)	<i>p</i> <0.001
Annual household income				
Mid-range <sup>f</sup>	.590 (.474-.735)	<i>p</i> <0.001	.626 (.576-.679)	<i>p</i> <0.001
High-range <sup>f</sup>	.699 (.546-.895)	<i>p</i> =0.005	.721 (.662-.785)	<i>p</i> <0.001
Sense of community belonging				
Strong <sup>g</sup>	.801 (.696-.922)	<i>p</i> =0.002	.724 (.696-.753)	<i>p</i> <0.001
Length of residence in Canada				
Longer-term (≥10 years) <sup>h</sup>	1.315 (1.122-1.541)	<i>p</i> =0.001	--	--
-2 log likelihood	5003.61		62242.14	
Change of -2 log likelihood; df	73.33; 9		840.70; 8	
p-value	<i>p</i> <0.001		<i>p</i> <0.001	

*Note.* Reference groups: (a) female, (b) younger adult, (c) unattached, (d) ≤secondary, (e) not employed, (f) low-range, (g) weak, (h) short-term (≤9 years)

**Table 5.21. Multivariate logistic regression analyses for visible minority immigrant and Canadian-born whites adults with a diagnosed mood disorder**

Socio-demographic characteristics	Visible minority immigrants		Canadian-born white adults	
	OR (95% CI)	p-value	OR (95% CI)	p-value
Gender				
Male <sup>a</sup>	.645 (.455-.913)	<i>p</i> =0.013	.569 (.532-.608)	<i>p</i> <0.001
Age				
Middle-aged <sup>b</sup>	1.222 (.842-1.773)	<i>p</i> =0.292	1.257 (1.177-1.342)	<i>p</i> <0.001
Marital status				
Attached <sup>c</sup>	.950 (.654-1.381)	<i>p</i> =0.789	.746 (.696-.800)	<i>p</i> <0.001
Education level				
≥Post-secondary <sup>d</sup>	.937 (.641-1.371)	<i>p</i> =0.138	1.064 (.990-1.144)	<i>p</i> =0.091
Employment status				
Employed <sup>e</sup>	.576 (.399-.832)	<i>p</i> =0.003	.510 (.474-.547)	<i>p</i> <0.001
Annual household income				
Mid-range <sup>f</sup>	.391 (.252-.607)	<i>p</i> <0.001	.473 (.429-.523)	<i>p</i> <0.001
High-range <sup>f</sup>	.253 (.142-.452)	<i>p</i> <0.001	.329 (.294-.369)	<i>p</i> <0.001
Sense of community belonging				
Strong <sup>g</sup>	.708 (.504-.997)	<i>p</i> =0.048	.681 (.638-.726)	<i>p</i> <0.001
Length of residence in Canada				
Longer-term (≥10 years) <sup>h</sup>	1.941 (1.280-2.944)	<i>p</i> =0.002	--	--
-2 log likelihood	1206.94		28005.13	
Change of -2 log likelihood; df	66.49; 9		1943.10; 8	
p-value	<i>p</i> <0.001		<i>p</i> <0.001	

*Note.* Reference groups: (a) female, (b) younger adult, (c) unattached, (d) ≤secondary, (e) not employed, (f) low-range, (g) weak, (h) short-term (≤9 years)

**Table 5.22. Multivariate logistic regression analyses for visible minority immigrant and Canadian-born white adults with a diagnosed anxiety disorder**

Socio-demographic characteristics	Visible minority immigrants		Canadian-born white adults	
	OR (95% CI)	p-value	OR (95% CI)	p-value
Gender				
Male <sup>a</sup>	1.193 (.782-1.819)	<i>p</i> =0.414	.529 (.491-.570)	<i>p</i> <0.001
Age				
Middle-aged <sup>b</sup>	1.337 (.844-2.118)	<i>p</i> =0.216	.944 (.877-1.016)	<i>p</i> =0.127
Marital status				
Attached <sup>c</sup>	.812 (.509-1.297)	<i>p</i> =0.384	.832 (.770-.900)	<i>p</i> <0.001
Education level				
≥Post-secondary <sup>d</sup>	1.359 (.810-2.280)	<i>p</i> =0.246	.976 (.901-1.058)	<i>p</i> =0.555
Employment status				
Employed <sup>e</sup>	.560 (.349-.899)	<i>p</i> =0.016	.548 (.506-.594)	<i>p</i> <0.001
Annual household income				
Mid-range <sup>f</sup>	.317 (.178-.566)	<i>p</i> <0.001	.480 (.430-.536)	<i>p</i> <0.001
High-range <sup>f</sup>	.493 (.256-.948)	<i>p</i> =0.034	.323 (.285-.367)	<i>p</i> <0.001
Sense of community belonging				
Strong <sup>g</sup>	.639 (.420-.974)	<i>p</i> =0.037	.661 (.615-.711)	<i>p</i> <0.001
Length of residence in Canada				
Longer-term (≥10 years) <sup>h</sup>	2.276 (1.318-3.929)	<i>p</i> =0.003	--	--
-2 log likelihood	850.65		23493.17	
Change of -2 log likelihood; df	43.00; 9		1446.97; 8	
p-value	<i>p</i> <0.001		<i>p</i> <0.001	

*Note.* Reference groups: (a) female, (b) younger adult, (c) unattached, (d) ≤secondary, (e) not employed, (f) low-range, (g) weak, (h) short-term (≤9 years)

**Table 5.23. Hierarchical logistic regression analysis of mental health service use by visible minority immigrant adults**

	Model 1		Model 2		Model 3	
	OR(95% CI)	p-value	OR(95% CI)	p-value	OR(95% CI)	p-value
<b>Block 1: Predisposing factors</b>						
Gender						
Male <sup>a</sup>	.591 (.433-.807)	<i>p</i> =0.001	.569 (.416-.779)	<i>p</i> <0.001	.545 (.374-.794)	<i>p</i> =0.002
Age						
Middle-aged <sup>b</sup>	.975 (.699-1.361)	<i>p</i> =0.881	.998 (.710-1.402)	<i>p</i> =0.990	.855 (.569-1.285)	<i>p</i> =0.451
Education level						
≥Post-secondary <sup>c</sup>	1.420 (.982-2.052)	<i>p</i> =0.062	1.466 (1.008-2.134)	<i>p</i> =0.045	1.562 (.994-2.457)	<i>p</i> =0.053
Employment status						
Employed <sup>d</sup>	.399 (.293-.544)	<i>p</i> <0.001	.511 (.366-.712)	<i>p</i> <0.001	.604 (.405-.899)	<i>p</i> =0.013
Length of residence in Canada						
Longer-term (≥10 years) <sup>e</sup>	1.696 (.1.200-2.399)	<i>p</i> =0.003	2.038 (1.412-2.942)	<i>p</i> <0.001	1.674 (1.089-2.572)	<i>p</i> =0.019
<b>Block 2: Enabling factors</b>						
Annual household income						
Mid-range <sup>f</sup>			.304 (.204-.453)	<i>p</i> <0.001	.368 (.228-.594)	<i>p</i> <0.001
High-range <sup>f</sup>			.331 (.205-.537)	<i>p</i> <0.001	.416 (.231-.750)	<i>p</i> =0.004
Marital status						
Attached <sup>g</sup>			.871 (.625-1.213)	<i>p</i> =0.412	.865(.585-1.279)	<i>p</i> =0.467
Sense of community belonging						
Strong <sup>h</sup>			.683 (.504-.924)	<i>p</i> =0.013	.834 (.580-1.199)	<i>p</i> =0.327
<b>Block 3: Need factors</b>						
Poor self-perceived mental health <sup>i</sup>					5.817 (3.523-9.607)	<i>p</i> <0.001
High self-perceived life stress <sup>j</sup>					2.335 (1.614-3.380)	<i>p</i> <0.001
Diagnosed mood disorder <sup>k</sup>					28.240 (16.757-47.593)	<i>p</i> <0.001
Diagnosed anxiety disorder <sup>l</sup>					3.634 (1.766-7.475)	<i>p</i> <0.001

-2 Log likelihood	1413.78	1369.44	998.40
-2 Log likelihood change; df	55.37; 5	99.71; 9	470.75; 13
<i>p</i> -value	<i>p</i> <0.001	<i>p</i> <0.001	<i>p</i> <0.001

---

*Note.* Reference groups: (a) female, , (b) younger adult, (c) ≤secondary, (d) not employed, (e) short-term (≤9 years), (f) low-range, (g) unattached, (h) weak, (i) good self-perceived mental health, (j) Not high self-perceived life stress, (k) no diagnosed mood disorder, (l) no diagnosed anxiety disorder

**Table 5.24. Hierarchical logistic regression analysis of mental health service use by Canadian-born white adults**

	<b>Model 1</b> OR(95% CI)	<i>p</i> -value	<b>Model 2</b> OR(95% CI)	<i>p</i> -value	<b>Model 3</b> OR(95% CI)	<i>p</i> -value
<b>Block 1: Predisposing factors</b>						
Gender						
Male <sup>a</sup>	.454 (.427-.482)	<i>p</i> <0.001	.448 (.421-.477)	<i>p</i> <0.001	.480 (.448-.515)	<i>p</i> <0.001
Age						
Middle-aged <sup>b</sup>	.784 (.738-.832)	<i>p</i> <0.001	.834 (.784-.886)	<i>p</i> <0.001	.698 (.650-.750)	<i>p</i> <0.001
Education level						
≥Post-secondary <sup>c</sup>	1.310 (1.220-1.405)	<i>p</i> <0.001	1.410 (1.311-1.516)	<i>p</i> <0.001	1.605 (1.472-1.749)	<i>p</i> <0.001
Employment status						
Employed <sup>d</sup>	.607 (.567-.650)	<i>p</i> <0.001	.722 (.671-.776)	<i>p</i> <0.001	.975 (.892-1.065)	<i>p</i> =0.569
<b>Block 2: Enabling factors</b>						
Annual household income						
Mid-range <sup>e</sup>			.484 (.435-.539)	<i>p</i> <0.001	.791 (.689-.907)	<i>p</i> =0.001
High-range <sup>e</sup>			.472 (.421-.530)	<i>p</i> <0.001	.900 (.778-1.042)	<i>p</i> =0.158
Marital status						
Attached <sup>f</sup>			.731 (.686-.780)	<i>p</i> <0.001	.748 (.695-.806)	<i>p</i> <0.000
Sense of community belonging						
Strong <sup>g</sup>			.783 (.738-.831)	<i>p</i> <0.001	.960 (.896-.1.029)	<i>p</i> =0.249
<b>Block 3: Need factors</b>						
Poor self-perceived mental health <sup>h</sup>					2.818 (2.482-3.199)	<i>p</i> <0.001
High self-perceived life stress <sup>i</sup>					1.706 (1.590-1.832)	<i>p</i> <0.001
Diagnosed mood disorder <sup>j</sup>					12.291 (11.168-13.527)	<i>p</i> <0.001
Diagnosed anxiety disorder <sup>k</sup>					3.384 (3.031-3.777)	<i>p</i> <0.001
-2 Log likelihood	30308.95		29869.30		23861.14	
-2 Log likelihood change; df	1035.07; 4		1474.73; 8		7482.88; 12	
<i>p</i> -value	<i>p</i> <0.001		<i>p</i> <0.001		<i>p</i> <0.001	

---

*Note.* Reference groups: (a) female, , (b) younger adult, (c) ≤secondary, (d) not employed, (e) low-range, (f) unattached, (g) weak, (h) good self-perceived mental health, (i) Not high self-perceived life stress, (j) no diagnosed mood disorder, (k) no diagnosed anxiety disorder

## **5.4 Research Question 3: Intersecting Correlates of Mental Health Outcomes and Service Utilization**

This section outlines the findings for the third research question: “How do social contextual factors interact to produce the mental health status and mental health service utilization in visible minority immigrant adults and Canadian-born white adults?” Binary logistic regression analysis with two-way and three-way interactions was performed to answer this question. Between-group two-way and three-way interaction analyses on mental health outcomes include variables of immigrant status, gender, age, and household income. Within-group two-way and three-way interaction analyses on mental health outcomes include variables of gender, age, and household income, while within-group two-way and three-way interaction analyses on service use includes variables of gender, household income, and negative mental health outcomes. Tables 5.25 to 5.36 present the weighted results for the intersecting (combined) effects of the above selected social contextual variables on mental health outcomes and service use for visible minority immigrant and Canadian-born white adults. Results for between-group and within-group differences are highlighted and followed by a summary with a focus on visible minority immigrants.

### **5.4.1 Intersecting correlates of poor self-perceived mental health**

Tables 5.25 and 5.26 present results of two-way and three-way interactions among selected social contextual variables in relation to poor self-perceived mental health. Between-group analysis (see Table 5.25) revealed that visible minority male immigrants (OR=1.826; 95% CI:1.047-3.185), middle-aged visible minority immigrants (OR=2.728; 95% CI:1.505-4.944), and visible minority immigrants with a mid- (OR=2.755; 95% CI:1.686-4.500) or high-range household income (OR=3.628; 95% CI:2.033-6.475) were significantly more likely to report

poor self-perceived mental health compared to all other intersecting social identities of both visible minority immigrant and Canadian-born white adults. Middle-aged visible minority male immigrants (OR=.122; 95% CI:.039-.379), visible minority male immigrants with a mid- (OR=.448; 95% CI:.235-.857) or high-range household income (OR=.376; 95% CI:.163-.867), and middle-aged visible minority immigrant adults with a mid-range household income (OR=.298; 95% CI:.146-.607) were significantly less likely to report poor self-perceived mental health compared to all other intersecting social identities of both visible minority immigrant and Canadian-born white adults.

Within-group analysis (see Table 5.26) revealed that among visible minority immigrants, middle-aged men with a mid- (OR=17.623; 95% CI:2.820-110.127) or high-range household income (OR=23.565; 95% CI:3.108-178.693) were significantly more likely to report poor self-perceived mental health compared to other intersecting immigrant social identities. Middle-aged men (OR=.096; 95% CI:.018-.502) and middle-aged adults with a mid-range household income (OR=.278; 95% CI:.099-.780) were significantly less likely to report poor self-perceived mental health compared to other intersecting immigrant social identities. Among Canadian-born white adults, men with a high-range household income (OR=.471; 95% CI:.338-.656) and middle-aged adults with mid- (OR=.743; 95% CI:.558-.988), or high-range household income (OR=.518; 95% CI:.378-.710) were significantly less likely to report poor self-perceived mental health compared to other intersecting Canadian-born white social identities.

#### **5.4.2 Intersecting correlates of high self-perceived life stress**

Tables 5.27 and 5.28 present the results of two-way and three-way interactions among selected social contextual variables in relation to high self-perceived life stress. Between-group analysis (see Table 5.27) revealed that middle-aged visible minority immigrants (OR=3.033,

95% CI:2.103-4.372), visible minority immigrant adults with a mid-range household income (OR=1.370, 95% CI:1.052-1.785), and visible minority male immigrants with a high-range household income (OR=1.858, 95% CI:1.260-2.739) were significantly more likely to report high life stress compared to all other intersecting social identities of both visible minority immigrant and Canadian-born white adults. Middle-aged visible minority male immigrants (OR=.272, 95% CI:.148-.500) and middle-aged visible minority immigrant adults with a mid- (OR=.197, 95% CI:.130-.297) or high-range household income (OR=.277, 95% CI:.177-.433) were significantly less likely to report high life stress compared to all other intersecting social identities of both visible minority immigrant and Canadian-born white adults.

Within-group analysis (see Table 5.28) revealed that among visible minority immigrant adults, middle-aged men with a mid-range household income (OR=5.728; 95% CI:2.188-14.996) were significantly more likely to report high life stress compared to other intersecting immigrant social identities. Middle-aged men (OR=.249; 95% CI:.104-.599) and middle-aged adults with a mid- (OR=.188; 95% CI:.104-.342) or high-range household income (OR=.265; 95% CI:.139-.504) were significantly less likely to report high life stress compared to other intersecting immigrant social identities. Among Canadian-born white adults, men with a mid- (OR=1.382; 95% CI:1.103-1.730) or high-range household income (OR=1.400; 95% CI:1.120-1.751) were significantly more likely to report high life stress compared to other intersecting Canadian-born white social identities. Middle-aged men with a mid-range household income (OR=.690; 95% CI:.502-.950) were significantly less likely to report high life stress compared to other intersecting Canadian-born white social identities.

### **5.4.3 Intersecting correlates of diagnosed mood disorders**

Tables 5.29 and 5.30 present the results of two-way and three-way interactions among selected social contextual variables in relation to diagnosed mood disorders. Between-group analysis (see Table 5.29) revealed that middle-aged visible minority immigrants (OR=2.776; 95% CI:1.469-5.246) and visible minority immigrants with mid- (OR=2.198; 95% CI:1.286-3.757) or high-range household income (OR=2.748; 95% CI:1.473-5.129) were significantly more likely to report a mood disorder compared to all other intersecting social identities of both visible minority immigrant and Canadian-born white adults. Visible minority male immigrants with a mid-range household income (OR=.438; 95% CI:.196-.981) and middle-aged visible minority immigrants with a mid- (OR=.239; 95% CI:.109-.523) or high-range household income (OR=.321; 95% CI:.130-.790) were significantly less likely to report a mood disorder compared to all other intersecting social identities of both visible minority immigrant and Canadian-born white adults.

Within-group analysis (see Table 5.30) revealed that among visible minority immigrant group, middle-aged adults with a mid-range household income (OR=.233; 95% CI:.075-.724) were significantly less likely to report a mood disorder compared to other intersecting immigrant social identities. Among Canadian-born white adults, men with a high-range household income (OR=.579; 95% CI:.427-.785) were significantly less likely to report a mood disorder compared to other intersecting Canadian-born white social identities.

### **5.4.4 Intersecting correlates of diagnosed anxiety disorders**

Tables 5.31 and 5.32 present the results of two-way and three-way interactions among selected social contextual variables in relation to diagnosed anxiety disorder. Between-group analysis (see Table 5.31) revealed that visible minority male immigrants were more likely to

report an anxiety disorder compared to all other intersecting social identities of both visible minority immigrant and Canadian-born white adults, with a marginal significance level ( $p=.051$ ).

Within-group analysis (see Table 5.32) revealed that among visible minority immigrants, there were no significant combined effects of social contextual factors on reported anxiety disorders in both two-way and three-way interactions. Among Canadian-born white adults, middle-aged adults with a high-range household income ( $OR=1.460$ ; 95% CI:1.107-1.926) were significantly more likely to report an anxiety disorder, while middle-aged men with a mid-range household income ( $OR=.575$ ; 95% CI:.373-.885) were significantly less likely to report an anxiety disorder compared to other intersecting Canadian-born white social identities.

#### **5.4.5 Intersecting correlates of mental health service use**

Drawing on Andersen and Newman's Model of Health Service Utilization (Andersen, 1995; Andersen & Newman, 1973), Tables 5.33 to 5.36 present the results of two-way and three-way interactions between gender (predisposing factor), household income (enabling factor), and four mental health outcomes (need factors) in relation to mental health service utilization by visible minority immigrant and Canadian-born white adults.

***Intersecting correlates of mental health service use by adults with poor self-perceived mental health.*** For visible minority immigrant adults, only men with poor self-perceived mental health ( $OR=4.834$ ; 95% CI:.952-24.543) were more likely to use mental health services compared to other intersecting immigrant social identities, with a marginal significance level was ( $p=.057$ ) (see Table 5.33). For Canadian-born white adults, those with a high-range household income and poor self-perceived mental health ( $OR=1.756$ ; 95% CI:1.192-2.588) and men with a mid-range household income and poor self-perceived mental health ( $OR=3.247$ ; 95% CI:1.935-5.450) were significantly more likely to use mental health services compared to other

intersecting social identities. Men with a mid- (OR=.620; 95% CI:.481-.799) or high-range household income (Or=.674; 95% CI:.525-.866) and men with poor self-perceived mental health (OR=.535; 95% CI:.345-.829) were significantly less likely to use mental health services compared to other intersecting Canadian-born white social identities.

***Intersecting correlates of mental health service use by adults with high self-perceived life stress.*** For visible minority immigrant adults, there were no significant combined effects of gender, household income, and high self-perceived life stress on mental health service use in both two-way and three-way interactions (see Table 5.34). For Canadian-born white adults, men with both high life stress and a mid- (OR=2.084; 95% CI:1.346-3.228) or high-range household income (OR=2.878; 95% CI:1.862-4.446) were significantly more likely to use mental health services compared to other intersecting social identities, while men with a mid- (OR=.579; 95% CI:.444-.755) or high-range household income (OR=.444; 95% CI:.339-.580) and men with high life stress (OR=.522; 95% CI:.352-.773) were significantly less likely to use mental health service compared to other intersecting Canadian-born white social identities.

***Intersecting correlates of mental health service use by adults with a diagnosed mood disorder.*** For visible minority immigrant adults, adults with both a mood disorder and a mid- (OR=6.442; 95% CI:1.464-28.341) or high-range household income (OR=6.177; 95% CI:1.068-35.716) were significantly more likely to use mental health services compared to other intersecting identities, while men with a high-range household income and a mood disorder (OR=.009; 95% CI:.000-.425) were significantly less likely to use mental health service compared to other intersecting immigrant social identities (see Table 5.35). For Canadian-born white adults, men with both a mood disorder and a mid- (OR=1.792; 95% CI:1.061-3.024) or high-range household income (OR=2.066; 95% CI:1.193-3.580) were significantly more likely

to use mental health services compared to other intersecting identities, while men with a mid- (OR=.606; 95% CI:.452-.812) or high-range household income (OR=.618; 95% CI:.464-.824) were significantly less likely to use mental health services compared to other intersecting Canadian-born white social identities.

*Intersecting correlates of mental health service use by adults with a diagnosed anxiety disorder.* For visible minority immigrant adults, men with an anxiety disorder (OR=11.385; 95% CI:1.099-117.962) were significantly more likely to use mental health services compared to other intersecting identities, while men with a mid-range household income and an anxiety disorder (OR=.046; 95% CI:.003-.831) were significantly less likely to use mental health services compared to other intersecting immigrant social identities (see Table 5.36). For Canadian-born white adults, adults with both an anxiety disorder and a mid- (OR=1.561; 95% CI:1.140-2.137) or high-range household income (OR=1.566; 95% CI:1.122-2.188) were significantly more likely to use mental health services compared to other intersecting identities, while men with mid- (OR=.705; 95% CI:.550-.902) or high-range household income (OR=.665; 95% CI:.521-.849) were significantly less likely to use mental health service compared to other intersecting Canadian-born white social identities.

In summary, between-group interaction analysis showed that visible minority immigrant men, middle-aged visible minority immigrant adults, and visible minority immigrant adults with a mid- or high-range household income were significantly more likely to have poor self-perceived mental health compared to all other intersecting immigrant or Canadian-born social identities. Middle-aged visible minority immigrant adults, visible minority immigrant adults with a mid-range household income, and visible minority immigrant men with a high-range household income were significantly more likely to have high self-perceived life stress compared to all

other intersecting immigrant or Canadian-born social identities. Middle-aged visible minority immigrant adults, visible minority immigrant adults with a mid- or high-range household income were significantly more likely to have diagnosed mood disorders compared to all other intersecting immigrant or Canadian-born social identities. Visible minority immigrant men were more likely to have diagnosed anxiety disorders compared to all other intersecting immigrant or Canadian-born social identities with a marginal significance level ( $p=.051$ ). Within-group interaction analysis for visible minority immigrants showed that immigrant men with a mid- or high-range household income were significantly more likely to have poor self-perceived mental health compared to all other intersecting immigrant social identities, whereas middle-aged men with a mid-range household income were significantly more likely to have high self-perceived life stress compared to all other intersecting immigrant social identities.

With respect to mental health service use by immigrant adults with a mental health need, interaction analysis indicated that immigrant men with a high-range household income and a diagnosed mood disorder and immigrant men with a mid-range household income and a diagnosed anxiety disorder were significantly less likely to use mental health service compared to other intersecting immigrant social identities.

## **5.5 Summary of Overall Findings**

Statistical analyses were conducted to identify cross-group and within-group differences in mental health outcomes and service use among visible minority immigrant adults, as compared to Canadian-born white adults. While no significant differences were found in self-perceived mental health between the two groups, there were significant differences visible minority immigrant and Canadian-born white adults in terms of self-perceived life stress and diagnosed mood and anxiety disorders.

When stratified by socio-demographic characteristics, only visible minority immigrants who were younger, unattached, unemployed, and reported a low- or mid-range household income and weak community belonging were significantly less likely to report poor self-perceived mental health compared to their Canadian-born white counterparts, while visible minority immigrants who were middle-aged, attached, and had a high-range household income were significantly more likely to report poor self-perceived mental health. Visible minority immigrants who were male or female, younger or middle-aged, attached, and reported a lower or higher education level, mid- or high-range household income, and weak or strong community belonging were significantly less likely than their Canadian-born white counterparts to report high self-perceived life stress, while visible minority immigrants who were unattached, unemployed, and had a low-range household income were as likely as their Canadian-born white counterparts to report high self-perceived life stress. Visible minority immigrants of all socio-demographic characteristics were significantly less likely to report diagnosed mood or anxiety disorders. Within the visible minority immigrant group, longer-term immigrants were significantly more likely than short-term immigrants to report poor self-perceived mental health and diagnosed mood or anxiety disorders, but no significant differences were noted for high self-perceived life stress.

Within the visible minority immigrant group, multivariate logistic regression analysis revealed that employment status, household income, sense of community belonging, and length of residence in Canada were significant correlates of poor self-perceived mental health. Gender, age, marital status, education level, household income, community belonging, and length of residence were significant correlates of high self-perceived life stress. Employment status, household income, community belonging, and length of residence were significant correlates of

mood and anxiety disorders, and gender was also a correlate of mood disorders. Analysis of interactions between correlates revealed that compared to all other intersecting immigrant and Canadian-born social identities, middle-aged visible minority immigrant adults and visible minority immigrant adults with a mid-range household income were the social identities associated with poor self-perceived mental health, high self-perceived life stress, and diagnosed mood disorders. Within the visible minority immigrant group, middle-aged men with a mid- or high-range household income were significantly more likely than other intersecting immigrant social identities to report poor self-perceived mental health and high self-perceived life stress respectively.

With respect to mental health service utilization, visible minority immigrants were generally less likely than their Canadian-born counterparts to report using mental health services. When considering mental health needs, visible minority immigrants with poor self-perceived mental health and high self-perceived life stress were still significantly less likely than their Canadian-born counterparts to have used mental health services. However, no significant differences were found in service use between visible minority immigrant and Canadian-born adults with diagnosed mood or anxiety disorders. Within the visible minority immigrant group, short-term immigrants with high self-perceived life stress were significantly less likely than longer-term immigrants to have used mental health services, but no significant differences were found in service use between the short- and longer-term immigrants with poor self-perceived mental health and diagnosed mood or anxiety disorders.

Hierarchical logistic regression analysis for the visible minority immigrant group revealed that gender, employment status, household income, length of residence in Canada, and negative mental health outcomes were significant correlates of mental health service. Those who

were male, employed, and had a mid- or high-range household income were significantly less likely to report using mental health services, while longer-term immigrants and those with mental health needs were significantly more likely to have used services. Analysis of interactions revealed that among visible minority immigrants, adults with a mood disorder and a mid- or high-range household income and men with an anxiety disorder were significantly more likely to use mental health services compared to other intersecting immigrant social identities, while men with a higher-range household income and either a mood or anxiety disorder were significantly less likely to report using mental health services. The implications of the findings are discussed in the following chapter.

**Table 5.25. Binary logistic regression on self-perceived mental health (interaction analysis)**

<b>Socio-demographic characteristics</b>	<b>Exp (B) (95% CI)</b>	<b>p-value</b>
Gender		
Male <sup>a</sup>	.943 (.869-.1.024)	<i>p</i> =0.163
Age		
Middle-aged <sup>b</sup>	1.236 (1.137-1.344)	<i>p</i> <0.001
Marital status		
Attached <sup>c</sup>	.698 (.643-.758)	<i>p</i> <0.001
Education level		
≥Post-secondary <sup>d</sup>	.866 (.798-.940)	<i>p</i> =0.001
Employment status		
Employed <sup>e</sup>	.480 (.441-.521)	<i>p</i> <0.001
Annual household income		
Mid-range <sup>f</sup>	.384 (.342-.430)	<i>p</i> <0.001
High-range <sup>f</sup>	.247 (.215-.282)	<i>p</i> <0.001
Sense of community belonging		
Strong <sup>g</sup>	.463 (.429-.500)	<i>p</i> <0.001
Immigrant Status		
Visible minority immigrant <sup>h</sup>	.304 (.196-.473)	<i>p</i> <0.001
Visible minority immigrant by male	1.826 (1.047-3.185)	<i>p</i> =0.034
Visible minority immigrant by middle-age	2.728 (1.505-4.944)	<i>p</i> =0.001
Visible minority immigrant by mid-range income	2.755 (1.686-4.500)	<i>p</i> <0.001
Visible minority immigrant by high-range income	3.628 (2.033-6.475)	<i>p</i> <0.001
Visible minority immigrant by male by middle-age	.122 (.039-.379)	<i>p</i> <0.001
Visible minority immigrant by male by mid-range income	.448 (.235-.857)	<i>p</i> =0.015
Visible minority immigrant by male by high-range income	.376 (.163-.867)	<i>p</i> =0.022
Visible minority immigrant by middle-age by mid-range income	.298 (.146-.607)	<i>p</i> =0.001
Visible minority immigrant by middle-age by high-range income	.514 (.231-1.148)	<i>p</i> =0.105
-2 log likelihood	21721.79	
Change of -2 log likelihood; df	2017.12; 20	
p-value	<i>p</i> <0.001	

*Note.* Reference groups: (a) female, (b) younger adult, (c) unattached, (d) ≤secondary, (e) not employed, (f) low-range, (g) weak, (h) Canadian-born white adults

**Table 5.26. Binary logistic regression on self-perceived mental health within visible minority immigrant and Canadian-born white adults (interaction analysis)**

Socio-demographic characteristics	Visible minority immigrant adults		Canadian-born white adults	
	Exp (B) (95% CI)	p-value	Exp (B) (95% CI)	p-value
Gender				
Male <sup>a</sup>	1.817 (.817-4.043)	<i>p</i> =0.143	1.242 (.950-1.624)	<i>p</i> =0.113
Age				
Middle-aged <sup>b</sup>	2.660 (1.122-6.308)	<i>p</i> =0.026	1.702 (1.335-2.169)	<i>p</i> <0.001
Marital status				
Attached <sup>c</sup>	.878 (.637-1.211)	<i>p</i> =0.438	.688 (.632-.749)	<i>p</i> <0.001
Education level				
≥Post-secondary <sup>d</sup>	.925 (.672-1.273)	<i>p</i> =0.632	.865 (.794-.941)	<i>p</i> =0.001
Employment status				
Employed <sup>e</sup>	.462 (.340-.628)	<i>p</i> <0.001	.486 (.445-.530)	<i>p</i> <0.001
Annual household income				
Mid-range <sup>f</sup>	.867 (.427-1.762)	<i>p</i> =0.693	.490 (.394-.610)	<i>p</i> <0.001
High-range <sup>f</sup>	.644 (.274-1.515)	<i>p</i> =0.314	.448 (.355-.565)	<i>p</i> <0.001
Sense of community belonging				
Strong <sup>g</sup>	.453 (.340-.602)	<i>p</i> <0.001	.460 (.425-.498)	<i>p</i> <0.001
Length of residence in Canada				
Longer-term (≥10 years) <sup>h</sup>	2.310 (1.616-3.302)	<i>p</i> <0.001	--	--
Male by middle-age	.096 (.018-.502)	<i>p</i> =0.005	.954 (.670-1.357)	<i>p</i> =0.792
Male by mid-range income	.422 (.165-1.079)	<i>p</i> =0.072	.851 (.624-1.160)	<i>p</i> =0.308
Male by high-range income	.342 (.102-1.150)	<i>p</i> =0.083	.471 (.338-.656)	<i>p</i> <0.001
Middle-age by mid-range income	.278 (.099-.780)	<i>p</i> =0.015	.743 (.558-.988)	<i>p</i> =0.041
Middle-age by high-range income	.490 (.153-1.572)	<i>p</i> =0.231	.518 (.378-.710)	<i>p</i> <0.001
Male by middle-age by mid-range income	17.623 (2.820-110.127)	<i>p</i> =0.002	.971 (.641-1.470)	<i>p</i> =0.889
Male by middle-age by high-range income	23.565 (3.108-178.693)	<i>p</i> =0.002	1.518 (.959-2.405)	<i>p</i> =0.075
-2 log likelihood	1599.05		20147.77	
Change of -2 log likelihood; df	112.41; 16		2059.00; 15	
p-value	<i>p</i> <0.001		<i>p</i> <0.001	

*Note.* Reference groups: (a) female, (b) younger adult, (c) unattached, (d) ≤secondary, (e) not employed, (f) low-range, (g) weak, (h) short-term (≤9 years)

**Table 5.27. Binary logistic regression on self-perceived life stress (interaction analysis)**

<b>Socio-demographic characteristics</b>	<b>Exp (B) (95% CI)</b>	<b>p-value</b>
Gender		
Male <sup>a</sup>	.828 (.795-.862)	<i>p</i> <0.001
Age		
Middle-aged <sup>b</sup>	1.131 (1.086-1.179)	<i>p</i> <0.001
Marital status		
Attached <sup>c</sup>	.951 (.912-.992)	<i>p</i> =0.019
Education level		
≥Post-secondary <sup>d</sup>	1.272 (1.216-1.330)	<i>p</i> <0.001
Employment status		
Employed <sup>e</sup>	1.436 (1.366-1.510)	<i>p</i> <0.001
Annual household income		
Mid-range <sup>f</sup>	.644 (.592-.702)	<i>p</i> <0.001
High-range <sup>f</sup>	.750 (.687-.820)	<i>p</i> <0.001
Sense of community belonging		
Strong <sup>g</sup>	.734 (.707-.762)	<i>p</i> <0.001
Immigrant Status		
Visible minority immigrant <sup>h</sup>	.803 (.629-1.025)	<i>p</i> =0.078
Visible minority immigrant by male	1.090 (.788-1.508)	<i>p</i> =0.601
Visible minority immigrant by middle-age	3.033 (2.103-4.372)	<i>p</i> <0.001
Visible minority immigrant by mid-range income	1.370 (1.052-1.785)	<i>p</i> =0.020
Visible minority immigrant by high-range income	.920 (.689-1.228)	<i>p</i> =0.572
Visible minority immigrant by male by middle-age	.272 (.148-.500)	<i>p</i> <0.001
Visible minority immigrant by male by mid-range income	.713 (.499-1.019)	<i>p</i> =0.063
Visible minority immigrant by male by high-range income	1.858 (1.260-2.739)	<i>p</i> =0.002
Visible minority immigrant by middle-age by mid-range income	.197 (.130-.297)	<i>p</i> <0.001
Visible minority immigrant by middle-age by high-range income	.277 (.177-.433)	<i>p</i> <0.001
-2 log likelihood	66887.86	
Change of -2 log likelihood; df	1006.65; 20	
p-value	<i>p</i> <0.001	

*Note.* Reference groups: (a) female, (b) younger adult, (c) unattached, (d) ≤secondary, (e) not employed, (f) low-range, (g) weak, (h) Canadian-born white adults

**Table 5.28. Binary logistic regression on self-perceived life stress within visible minority immigrant and Canadian-born white adults (interaction analysis)**

Socio-demographic characteristics	Visible minority immigrant adults		Canadian-born white adults	
	Exp (B) (95% CI)	p-value	Exp (B) (95% CI)	p-value
Gender				
Male <sup>a</sup>	.957 (.602-1.521)	<i>p</i> =0.851	.603 (.489-.745)	<i>p</i> <0.001
Age				
Middle-aged <sup>b</sup>	3.291 (1.945-5.570)	<i>p</i> <0.001	1.087 (.898-1.315)	<i>p</i> =0.394
Marital status				
Attached <sup>c</sup>	.863 (.740-1.007)	<i>p</i> =0.062	.972 (.930-1.015)	<i>p</i> =0.199
Education level				
≥Post-secondary <sup>d</sup>	1.385 (1.164-1.647)	<i>p</i> <0.001	1.260 (1.203-1.319)	<i>p</i> <0.001
Employment status				
Employed <sup>e</sup>	1.048 (.886-1.240)	<i>p</i> =0.585	1.518 (1.439-1.601)	<i>p</i> <0.001
Annual household income				
Mid-range <sup>f</sup>	.949 (.656-1.374)	<i>p</i> =0.783	.592 (.512-.684)	<i>p</i> <0.001
High-range <sup>f</sup>	.754 (.498-1.143)	<i>p</i> =0.183	.608 (.525-.704)	<i>p</i> <0.001
Sense of community belonging				
Strong <sup>g</sup>	.783 (.679-.902)	<i>p</i> =0.001	.726 (.698-.755)	<i>p</i> <0.001
Length of residence in Canada				
Longer-term (≥10 years) <sup>h</sup>	1.320 (1.125-1.548)	<i>p</i> =0.001	--	--
Male by middle-age	.249 (.104-.599)	<i>p</i> =0.002	1.193 (.887-1.605)	<i>p</i> =0.244
Male by mid-range income	.704 (.421-1.177)	<i>p</i> =0.181	1.382 (1.103-1.730)	<i>p</i> =0.005
Male by high-range income	1.738 (.993-3.042)	<i>p</i> =0.053	1.400 (1.120-1.751)	<i>p</i> =0.003
Middle-age by mid-range income	.188 (.104-.342)	<i>p</i> <0.001	.994 (.810-1.222)	<i>p</i> =0.957
Middle-age by high-range income	.265 (.139-.504)	<i>p</i> <0.001	1.073 (.873-1.320)	<i>p</i> =0.501
Male by middle-age by mid-range income	5.728 (2.188-14.996)	<i>p</i> <0.001	.690 (.502-.950)	<i>p</i> =0.023
Male by middle-age by high-range income	2.469 (.896-6.800)	<i>p</i> =0.080	.968 (.705-1.327)	<i>p</i> =0.838
-2 log likelihood	4945.76		62163.95	
Change of -2 log likelihood; df	131.18; 16		918.89; 15	
p-value	<i>p</i> <0.001		<i>p</i> <0.001	

*Note.* Reference groups: (a) female, (b) younger adult, (c) unattached, (d) ≤secondary, (e) not employed, (f) low-range, (g) weak, (h) short-term (≤9 years)

**Table 5.29. Binary logistic regression on diagnosed mood disorder (interaction analysis)**

<b>Socio-demographic characteristics</b>	<b>Exp (B) (95% CI)</b>	<b>p-value</b>
Gender		
Male <sup>a</sup>	.569 (.530-.609)	<i>p</i> <0.001
Age		
Middle-aged <sup>b</sup>	1.255 (1.172-1.344)	<i>p</i> <0.001
Marital status		
Attached <sup>c</sup>	.751 (.700-.806)	<i>p</i> <0.001
Education level		
≥Post-secondary <sup>d</sup>	1.048 (.975-1.128)	<i>p</i> =0.203
Employment status		
Employed <sup>e</sup>	.517 (.481-.556)	<i>p</i> <0.001
Annual household income		
Mid-range <sup>f</sup>	.471 (.424-.522)	<i>p</i> <0.001
High-range <sup>f</sup>	.327 (.290-.367)	<i>p</i> <0.001
Sense of community belonging		
Strong <sup>g</sup>	.686 (.642-.732)	<i>p</i> <0.001
Immigrant Status		
Visible minority immigrant <sup>h</sup>	.156 (.096-.252)	<i>p</i> <0.001
Visible minority immigrant by male	1.743 (.888-3.422)	<i>p</i> =0.106
Visible minority immigrant by middle-age	2.776 (1.469-5.246)	<i>p</i> =0.002
Visible minority immigrant by mid-range income	2.198 (1.286-3.757)	<i>p</i> =0.004
Visible minority immigrant by high-range income	2.748 (1.473-5.129)	<i>p</i> =0.001
Visible minority immigrant by male by middle-age	1.267 (.497-3.230)	<i>p</i> =0.619
Visible minority immigrant by male by mid-range income	.438 (.196-.981)	<i>p</i> =0.045
Visible minority immigrant by male by high-range income	.431 (.155-1.197)	<i>p</i> =0.106
Visible minority immigrant by middle-age by mid-range income	.239 (.109-.523)	<i>p</i> <0.001
Visible minority immigrant by middle-age by high-range income	.321 (.130-.790)	<i>p</i> =0.013
-2 log likelihood	27939.11	
Change of -2 log likelihood; df	2251.25; 20	
p-value	<i>p</i> <0.001	

*Note.* Reference groups: (a) female, (b) younger adult, (c) unattached, (d) ≤secondary, (e) not employed, (f) low-range, (g) weak, (h) Canadian-born white adults

**Table 5.30. Binary logistic regression on diagnosed mood disorder within visible minority immigrant and Canadian-born white adults (interaction analysis)**

Socio-demographic characteristics	Visible minority immigrant adults		Canadian-born white adults	
	Exp (B) (95% CI)	p-value	Exp (B) (95% CI)	p-value
Gender				
Male <sup>a</sup>	1.028 (.390-2.712)	<i>p</i> =0.956	.641 (.498-.826)	<i>p</i> =0.001
Age				
Middle-aged <sup>b</sup>	2.724 (1.079-6.872)	<i>p</i> =0.034	1.382 (1.119-1.705)	<i>p</i> =0.003
Marital status				
Attached <sup>c</sup>	.908 (.624-1.322)	<i>p</i> =0.616	.737 (.687-.790)	<i>p</i> <0.001
Education level				
≥Post-secondary <sup>d</sup>	.942 (.641-1.384)	<i>p</i> =0.760	1.058 (.985-1.138)	<i>p</i> =0.124
Employment status				
Employed <sup>e</sup>	.581 (.402-.838)	<i>p</i> =0.004	.509 (.474-.547)	<i>p</i> <0.001
Annual household income				
Mid-range <sup>f</sup>	.857 (.392-1.872)	<i>p</i> =0.699	.541 (.453-.645)	<i>p</i> <0.001
High-range <sup>f</sup>	.665 (.262-1.691)	<i>p</i> =0.392	.404 (.334-.487)	<i>p</i> <0.001
Sense of community belonging				
Strong <sup>g</sup>	.733 (.519-1.035)	<i>p</i> =0.077	.680 (.638-.726)	<i>p</i> <0.001
Length of residence in Canada				
Longer-term (≥10 years) <sup>h</sup>	1.869 (1.238-2.823)	<i>p</i> =0.003	--	--
Male by middle-age	1.104 (.283-4.302)	<i>p</i> =0.887	1.076 (.768-1.507)	<i>p</i> =0.671
Male by mid-range income	.409 (.128-1.310)	<i>p</i> =0.132	1.017 (.767-1.350)	<i>p</i> =0.906
Male by high-range income	.397 (.091-1.733)	<i>p</i> =0.219	.579 (.427-.785)	<i>p</i> <0.001
Middle-age by mid-range income	.233 (.075-.724)	<i>p</i> =0.012	.826 (.651-1.048)	<i>p</i> =0.116
Middle-age by high-range income	.318 (.086-1.172)	<i>p</i> =0.085	.923 (.717-1.189)	<i>p</i> =0.536
Male by middle-age by mid-range income	2.741 (.513-14.658)	<i>p</i> =0.238	.847 (.577-1.243)	<i>p</i> =0.395
Male by middle-age by high-range income	.482 (.045-5.130)	<i>p</i> =0.545	1.362 (.904-2.050)	<i>p</i> =0.139
-2 log likelihood	1188.95		27952.60	
Change of -2 log likelihood; df	84.47; 16		1995.63; 15	
p-value	<i>p</i> <0.001		<i>p</i> <0.001	

*Note.* Reference groups: (a) female, (b) younger adult, (c) unattached, (d) ≤secondary, (e) not employed, (f) low-range, (g) weak, (h) Short-term (≤9 years)

**Table 5.31. Binary logistic regression on diagnosed anxiety disorder (interaction analysis)**

<b>Socio-demographic characteristics</b>	<b>Exp (B) (95% CI)</b>	<b>p-value</b>
Gender		
Male <sup>a</sup>	.529 (.489-.572)	<i>p</i> <0.001
Age		
Middle-aged <sup>b</sup>	.947 (.877-1.023)	<i>p</i> =0.168
Marital status		
Attached <sup>c</sup>	.825 (.762-.893)	<i>p</i> <0.001
Education level		
≥Post-secondary <sup>d</sup>	.988 (.911-1.072)	<i>p</i> =0.773
Employment status		
Employed <sup>e</sup>	.551 (.508-.598)	<i>p</i> <0.001
Annual household income		
Mid-range <sup>f</sup>	.480 (.428-.538)	<i>p</i> <0.001
High-range <sup>f</sup>	.323 (.283-.368)	<i>p</i> <0.001
Sense of community belonging		
Strong <sup>g</sup>	.659 (.613-.709)	<i>p</i> <0.001
Immigrant Status		
Visible minority immigrant <sup>h</sup>	.145 (.085-.249)	<i>p</i> <0.001
Visible minority immigrant by male	2.084 (.998-4.353)	<i>p</i> =0.051
Visible minority immigrant by middle-age	1.900 (.849-4.250)	<i>p</i> =0.118
Visible minority immigrant by mid-range income	.886 (.455-1.726)	<i>p</i> =0.721
Visible minority immigrant by high-range income	1.629 (.749-3.540)	<i>p</i> =0.218
Visible minority immigrant by male by middle-age	.793 (.229-2.743)	<i>p</i> =0.714
Visible minority immigrant by male by mid-range income	1.014 (.402-2.558)	<i>p</i> =0.977
Visible minority immigrant by male by high-range income	.991 (.330-2.969)	<i>p</i> =0.986
Visible minority immigrant by middle-age by mid-range income	.732 (.258-2.077)	<i>p</i> =0.557
Visible minority immigrant by middle-age by high-range income	.943 (.303-2.935)	<i>p</i> =0.919
-2 log likelihood	23127.43	
Change of -2 log likelihood; df	1722.08; 20	
p-value	<i>p</i> <0.001	

*Note.* Reference groups: (a) female, (b) younger adult, (c) unattached, (d) ≤secondary, (e) not employed, (f) low-range, (g) weak, (h) Canadian-born white adults

**Table 5.32. Binary logistic regression on diagnosed anxiety disorder within visible minority immigrant and Canadian-born white adults (interaction analysis)**

Socio-demographic characteristics	Visible minority immigrant adults		Canadian-born white adults	
	Exp (B) (95% CI)	p-value	Exp (B) (95% CI)	p-value
Gender				
Male <sup>a</sup>	1.127 (.390-3.261)	<i>p</i> =0.825	.477 (.364-.624)	<i>p</i> <0.001
Age				
Middle-aged <sup>b</sup>	1.419 (.437-4.605)	<i>p</i> =0.560	.782 (.624-.980)	<i>p</i> =0.033
Marital status				
Attached <sup>c</sup>	.798 (.495-1.289)	<i>p</i> =0.357	.829 (.766-.897)	<i>p</i> <0.001
Education level				
≥Post-secondary <sup>d</sup>	1.353 (.806-2.272)	<i>p</i> =0.253	.976 (.901-1.057)	<i>p</i> =0.552
Employment status				
Employed <sup>e</sup>	.561 (.348-.903)	<i>p</i> =0.017	.546 (.503-.592)	<i>p</i> <0.001
Annual household income				
Mid-range <sup>f</sup>	.359 (.135-.955)	<i>p</i> =0.040	.454 (.379-.543)	<i>p</i> <0.001
High-range <sup>f</sup>	.373 (.116-1.207)	<i>p</i> =0.100	.285 (.234-.347)	<i>p</i> <0.001
Sense of community belonging				
Strong <sup>g</sup>	.621 (.406-.949)	<i>p</i> =0.028	.662 (.616-.712)	<i>p</i> <0.001
Length of residence in Canada				
Longer-term (≥10 years) <sup>h</sup>	2.379 (1.371-4.127)	<i>p</i> =0.002	--	--
Male by middle-age	.668 (.110-4.068)	<i>p</i> =0.662	1.427 (.980-2.077)	<i>p</i> =0.063
Male by mid-range income	.957 (.250-3.654)	<i>p</i> =0.948	1.209 (.893-1.637)	<i>p</i> =0.218
Male by high-range income	.920 (.188-4.504)	<i>p</i> =0.918	1.110 (.805-1.530)	<i>p</i> =0.524
Middle-age by mid-range income	.677 (.150-3.065)	<i>p</i> =0.613	1.192 (.923-1.541)	<i>p</i> =0.179
Middle-age by high-range income	1.001 (.193-5.196)	<i>p</i> =0.999	1.460 (1.107-1.926)	<i>p</i> =0.007
Male by middle-age by mid-range income	1.472 (.156-13.853)	<i>p</i> =0.736	.575 (.373-.885)	<i>p</i> =0.012
Male by middle-age by high-range income	2.964 (.275-32.000)	<i>p</i> =0.371	.639 (.405-1.009)	<i>p</i> =0.055
-2 log likelihood	846.20		23476.39	
Change of -2 log likelihood; df	47.45; 16		1463.76; 15	
p-value	<i>p</i> <0.001		<i>p</i> <0.001	

*Note.* Reference groups: (a) female, (b) younger adult, (c) unattached, (d) ≤secondary, (e) not employed, (f) low-range, (g) weak, (h) Short-term (≤9 years)

**Table 5.33. Binary logistic regression on mental health service use within visible minority immigrant and Canadian-born white adults (interactions with self-perceived mental health)**

Socio-demographic characteristics	Visible minority immigrant adults		Canadian-born white adults	
	Exp (B) (95% CI)	p-value	Exp (B) (95% CI)	p-value
Gender				
Male <sup>a</sup>	.573 (.273-1.205)	<i>p</i> =0.142	.623 (.495-.784)	<i>p</i> <0.001
Age				
Middle-aged <sup>b</sup>	.924 (.638-1.339)	<i>p</i> =0.676	.791 (.742-.843)	<i>p</i> <0.001
Marital status				
Attached <sup>c</sup>	.846 (.596-1.200)	<i>p</i> =0.349	.760 (.711-.813)	<i>p</i> <0.001
Education level				
≥Post-secondary <sup>d</sup>	1.437 (.967-2.136)	<i>p</i> =0.073	1.517 (1.406-1.638)	<i>p</i> <0.001
Employment status				
Employed <sup>e</sup>	.643 (.453-.912)	<i>p</i> =0.013	.829 (.768-.895)	<i>p</i> <0.001
Annual household income				
Mid-range <sup>f</sup>	.410 (.234-.717)	<i>p</i> =0.002	.648 (.554-.759)	<i>p</i> <0.001
High-range <sup>f</sup>	.391 (.201-.761)	<i>p</i> =0.006	.633 (.538-.745)	<i>p</i> <0.001
Sense of community belonging				
Strong <sup>g</sup>	.869 (.627-1.205)	<i>p</i> =0.400	.881 (.828-.938)	<i>p</i> <0.001
Length of residence in Canada				
Longer-term (≥10 years) <sup>h</sup>	1.628 (1.100-2.407)	<i>p</i> =0.015	--	--
Mental health outcome				
Poor perceived mental health <sup>i</sup>	5.462 (1.992-14.977)	<i>p</i> =0.001	7.454 (5.515-10.077)	<i>p</i> <0.001
Male by mid-range income	.546 (.212-1.402)	<i>p</i> =0.209	.620 (.481-.799)	<i>p</i> <0.001
Male by high-range income	.502 (.161-1.567)	<i>p</i> =0.235	.674 (.525-.866)	<i>p</i> =0.002
Male by poor perceived mental health	4.834 (.952-24.543)	<i>p</i> =0.057	.535 (.345-.829)	<i>p</i> =0.005
Mid-range income by poor perceived mental health	.984 (.274-3.530)	<i>p</i> =0.980	.968 (.679-1.381)	<i>p</i> =0.859
High-range income by poor perceived mental health	2.254 (.543-9.354)	<i>p</i> =0.263	1.756 (1.192-2.588)	<i>p</i> =0.004
Male by mid-range income by poor perceived mental health	.977 (.133-7.161)	<i>p</i> =0.982	3.247 (1.935-5.450)	<i>p</i> <0.001
Male by high-range income by poor perceived mental health	1.028 (.107-9.850)	<i>p</i> =0.981	1.755 (.993-3.104)	<i>p</i> =0.053
-2 log likelihood	1213.20		28056.34	

Change of -2 log likelihood; df	257.70; 17	3369.74; 16
p-value	$p < 0.001$	$p < 0.001$

---

*Note.* Reference groups: (a) female, (b) younger adult, (c) unattached, (d)  $\leq$ secondary, (e) not employed, (f) low-range, (g) weak, (h) short-term ( $\leq 9$  years), (i) good self-perceived mental health

**Table 5.34. Binary logistic regression on mental health service use within visible minority immigrant and Canadian-born white adults (interactions with self-perceived life stress)**

Socio-demographic characteristics	Visible minority immigrant adults		Canadian-born white adults	
	Exp (B) (95% CI)	p-value	Exp (B) (95% CI)	p-value
Gender				
Male <sup>a</sup>	.905 (.365-2.248)	<i>p</i> =0.830	.793 (.626-1.004)	<i>p</i> =0.054
Age				
Middle-aged <sup>b</sup>	1.020 (.722-1.442)	<i>p</i> =0.909	.820 (.771-.872)	<i>p</i> <0.001
Marital status				
Attached <sup>c</sup>	.919 (.654-1.292)	<i>p</i> =0.627	.730 (.684-.779)	<i>p</i> <0.001
Education level				
≥Post-secondary <sup>d</sup>	1.441 (.974-2.130)	<i>p</i> =0.067	1.370 (1.273-1.474)	<i>p</i> <0.001
Employment status				
Employed <sup>e</sup>	.477 (.341-.669)	<i>p</i> <0.001	.659 (.612-.709)	<i>p</i> <0.001
Annual household income				
Mid-range <sup>f</sup>	.500 (.236-1.059)	<i>p</i> =0.070	.639 (.536-.763)	<i>p</i> <0.001
High-range <sup>f</sup>	.534 (.229-1.242)	<i>p</i> =0.145	.679 (.566-.816)	<i>p</i> <0.001
Sense of community belonging				
Strong <sup>g</sup>	.724 (.532-.987)	<i>p</i> =0.041	.825 (.777-.877)	<i>p</i> <0.001
Length of residence in Canada				
Longer-term (≥10 years) <sup>h</sup>	1.830 (1.266-2.645)	<i>p</i> =0.001	--	--
Mental health outcome				
High perceived life stress <sup>i</sup>	4.116 (1.812-9.351)	<i>p</i> =0.001	2.965 (2.330-3.773)	<i>p</i> <0.001
Male by mid-range income	.539 (.178-1.636)	<i>p</i> =0.275	.579 (.444-.755)	<i>p</i> <0.001
Male by high-range income	.378 (.096-1.490)	<i>p</i> =0.165	.444 (.339-.580)	<i>p</i> <0.001
Male by poor high perceived life stress	1.140 (.331-3.931)	<i>p</i> =0.835	.522 (.352-.773)	<i>p</i> =0.001
Mid-range income by high perceived life stress	.755 (.281-2.029)	<i>p</i> =0.578	.778 (.596-1.014)	<i>p</i> =0.064
High-range income by high perceived life stress	.835 (.277-2.519)	<i>p</i> =0.749	.665 (.509-.869)	<i>p</i> =0.003
Male by mid-range income by high perceived life stress	1.018 (.216-4.794)	<i>p</i> =0.982	2.084 (1.346-3.228)	<i>p</i> =0.001
Male by high-range income by high perceived life stress	1.478 (.244-8.948)	<i>p</i> =0.671	2.878 (1.862-4.446)	<i>p</i> <0.001
-2 log likelihood	1297.34		29171.22	
Change of -2 log likelihood; df	171.96; 17		2244.06; 16	
p-value	<i>p</i> <0.000		<i>p</i> <0.000	

---

*Note.* Reference groups: (a) female, (b) younger adult, (c) unattached, (d)  $\leq$ secondary, (e) not employed, (f) low-range, (g) weak, (h) short-term ( $\leq$ 9 years), (i) low perceived stress

**Table 5.35. Binary logistic regression on mental health service use within visible minority immigrant and Canadian-born white adults (interactions with diagnosed mood disorder)**

Socio-demographic characteristics	Visible minority immigrant adults		Canadian-born white adults	
	Exp (B) (95% CI)	p-value	Exp (B) (95% CI)	p-value
Gender				
Male <sup>a</sup>	.635 (.304-1.327)	<i>p</i> =0.228	.697 (.533-.910)	<i>p</i> =0.008
Age				
Middle-aged <sup>b</sup>	.938 (.632-1.392)	<i>p</i> =0.752	.707 (.660-.758)	<i>p</i> <0.001
Marital status				
Attached <sup>c</sup>	.842 (.576-1.230)	<i>p</i> =0.373	.739 (.688-.795)	<i>p</i> <0.000
Education level				
≥Post-secondary <sup>d</sup>	1.746 (1.126-2.708)	<i>p</i> =0.013	1.508 (1.389-1.637)	<i>p</i> <0.000
Employment status				
Employed <sup>e</sup>	.547 (.372-.804)	<i>p</i> =0.002	.943 (.867-1.025)	<i>p</i> =0.169
Annual household income				
Mid-range <sup>f</sup>	.275 (.150-.506)	<i>p</i> <0.000	.716 (.594-.865)	<i>p</i> =0.001
High-range <sup>f</sup>	.308 (.150-.630)	<i>p</i> =0.001	.806 (.665-.978)	<i>p</i> =0.028
Sense of community belonging				
Strong <sup>g</sup>	.683 (.483-.965)	<i>p</i> =0.031	.859 (.803-.918)	<i>p</i> <0.000
Length of residence in Canada				
Longer-term (≥10 years) <sup>h</sup>	2.066 (1.354-3.153)	<i>p</i> =0.001	--	--
Mental health outcome				
Has a mood disorder <sup>i</sup>	13.521 (3.976-45.977)	<i>p</i> <0.000	17.784 (13.181-23.995)	<i>p</i> <0.000
Male by mid-range income	.972 (.383-2.469)	<i>p</i> =0.953	.606 (.452-.812)	<i>p</i> =0.001
Male by high-range income	1.331 (.483-3.665)	<i>p</i> =0.580	.618 (.464-.824)	<i>p</i> =0.001
Male by mood disorder	5.078 (.592-43.568)	<i>p</i> =0.138	.788 (.498-1.248)	<i>p</i> =0.310
Mid-range income by mood disorder	6.442 (1.464-28.341)	<i>p</i> =0.014	1.074 (.767-1.503)	<i>p</i> =0.678
High-range income by mood disorder	6.177 (1.068-35.716)	<i>p</i> =0.042	1.001 (.705-1.422)	<i>p</i> =0.994
Male by mid-range income by mood disorder	.083 (.007-1.012)	<i>p</i> =0.051	1.792 (1.061-3.024)	<i>p</i> =0.029
Male by high-range income by mood disorder	.009 (.000-.425)	<i>p</i> =0.017	2.066 (1.193-3.580)	<i>p</i> =0.010
-2 log likelihood	1093.39		25034.63	
Change of -2 log likelihood; df	376.69; 17		6401.45; 16	
p-value	<i>p</i> <0.001		<i>p</i> <0.001	

---

*Note.* Reference groups: (a) female, (b) younger adult, (c) unattached, (d)  $\leq$ secondary, (e) not employed, (f) low-range, (g) weak, (h) short-term ( $\leq$ 9 years), (i) has no mood disorder

**Table 5.36. Binary logistic regression on mental health service use within visible minority immigrant and Canadian-born white adults (interactions with diagnosed anxiety disorder)**

Socio-demographic characteristics	Visible minority immigrant adults		Canadian-born white adults	
	Exp (B) (95% CI)	p-value	Exp (B) (95% CI)	p-value
Gender				
Male <sup>a</sup>	.623 (.318-.221)	<i>p</i> =0.168	.626 (.501-.782)	<i>p</i> <0.001
Age				
Middle-aged <sup>b</sup>	.895 (.624-1.284)	<i>p</i> =0.547	.829 (.778-.884)	<i>p</i> <0.001
Marital status				
Attached <sup>c</sup>	.824 (.585-1.161)	<i>p</i> =0.268	.733 (.685-.784)	<i>p</i> <0.001
Education level				
≥Post-secondary <sup>d</sup>	1.407 (.951-2.081)	<i>p</i> =0.088	1.495 (1.386-1.613)	<i>p</i> <0.001
Employment status				
Employed <sup>e</sup>	.523 (.369-.740)	<i>p</i> <0.001	.809 (.749-.873)	<i>p</i> <0.001
Annual household income				
Mid-range <sup>f</sup>	.373 (.220-.633)	<i>p</i> <0.001	.576 (.491-.676)	<i>p</i> <0.001
High-range <sup>f</sup>	.398 (.213-.743)	<i>p</i> =0.004	.624 (.529-.737)	<i>p</i> <0.001
Sense of community belonging				
Strong <sup>g</sup>	.742 (.540-1.019)	<i>p</i> =0.065	.834 (.784-.888)	<i>p</i> <0.001
Length of residence in Canada				
Longer-term (≥10 years) <sup>h</sup>	1.988 (1.353-2.922)	<i>p</i> <0.001	--	--
Mental health outcome				
Has an anxiety disorder <sup>i</sup>	5.293 (1.330-21.060)	<i>p</i> =0.018	4.628 (3.515-6.095)	<i>p</i> <0.001
Male by mid-range income	.798 (.347-1.834)	<i>p</i> =0.595	.705 (.550-.902)	<i>p</i> =0.005
Male by high-range income	.525 (.187-1.474)	<i>p</i> =0.221	.665 (.521-.849)	<i>p</i> =0.001
Male by anxiety disorder	11.385 (1.099-117.962)	<i>p</i> =0.041	1.445 (.903-2.312)	<i>p</i> =0.125
Mid-range income by anxiety disorder	3.920 (.654-23.494)	<i>p</i> =0.135	1.561 (1.140-2.137)	<i>p</i> =0.006
High-range income by anxiety disorder	3.750 (.496-28.332)	<i>p</i> =0.200	1.566 (1.122-2.188)	<i>p</i> =0.008
Male by mid-range income by anxiety disorder	.046 (.003-.831)	<i>p</i> =0.037	1.281 (.748-2.193)	<i>p</i> =0.366
Male by high-range income by anxiety disorder	.187 (.009-3.798)	<i>p</i> =0.275	1.036 (.590-1.819)	<i>p</i> =0.902
-2 log likelihood	1260.90		27916.08	
Change of -2 log likelihood; df	209.14; 17		3500.07; 16	
p-value	<i>p</i> <0.000		<i>p</i> <0.000	

---

*Note.* Reference groups: (a) female, (b) younger adult, (c) unattached, (d)  $\leq$ secondary, (e) not employed, (f) low-range, (g) weak, (h) short-term ( $\leq$ 9 years), (i) has no anxiety disorder

## **Chapter Six: Discussion and Conclusion**

### **6.1 Introduction**

Canada's visible minority immigrant population has grown very rapidly in recent decades, increasing by more than 100% since the 1980s (Statistics Canada, 2010). In all likelihood, this trend will continue into the next decades. As visible minority immigrants represent more than 50% of the total immigrant population in Canada (Statistics Canada, 2013b), understanding the challenges they face with respect to mental health status and help-seeking patterns is of particular significance, although visible minority immigrants have been understudied and underserved in the Canadian mental health field (Chen, 2010; Hansson, Tuck, Lurie, & McKenzie, 2012; Islam, Khanlou, & Tamim, 2014; Wu, Penning, & Schimmele, 2005; Xu & McDonald, 2010). Existing literature on immigrant mental health has consistently shown that visible minority immigrant adults experience a range of stressors associated with migration and settlement and are at increased risk for mental health problems such as psychotic and affective disorders (Jafari, Baharlou, & Mathias, 2010; Srirangson, Thavorn, Moon, & Noh, 2013).

While the impact of migration-related stressors has been widely recognised, relatively little is known about mental health status and service utilization patterns among visible minority immigrant adults and the intersecting effects of social contextual factors in these two areas, not to mention immigrant-specific recommendations for related clinical practice and policy domains. Most of the limited empirical studies on immigrant mental health and service use have focused primarily on individual determinants, with limited attention to the intersecting effects of social identities in the Canadian context (Cairney et al., 2014). This study aimed to address these

knowledge gaps by examining mental health status and service utilization among visible minority immigrant adults, based on the social determinants of health perspective in the context of intersectionality.

The key findings of the current study revealed variations in mental health status and service utilization between visible minority immigrant and Canadian-born white adults. Multivariate logistic regression modelling revealed different determinants associated with mental health outcomes and service use for the two groups. Visible minority immigrants generally reported better mental health and lower service use than their Canadian-born counterparts, initially confirming the notion of the healthy immigrant effect. Among visible minority immigrants, short-term immigrants generally reported better mental health and lower service use than longer-term immigrants, initially confirming the notion of the transitional effect (recent immigrants' health advantage decreases over time and converges with that of the local-born populations). However, when stratified by socio-demographic characteristics and mental health needs, between-group and within-group differences in certain mental health and service use outcomes disappeared or became insignificant, challenging the relevance of these two pervasive immigrant mental health perspectives widely confirmed in previous research studies.

This chapter examines these key research findings, and considers potential explanations for the findings and their convergence with and divergence from previous literature. The study strengths and limitations are then discussed. Finally, the implications for clinical social work practice and social and health policies are discussed, along with future research directions for ethno-cultural immigrant mental health and service utilization.

## **6.2 Discussion of the Findings**

### **6.2.1 Differences in mental health outcomes, risk and protective factors, and intersecting effects**

The findings of the current study only partially support the existence of healthy immigrant effect and transitional effect on the four mental health outcomes (self-perceived mental health, self-perceived life stress, diagnosed mood disorders, and diagnosed anxiety disorders). Preliminary cross-group results of Chi-square test indicate that when compared to Canadian-born white adults, visible minority immigrant adults generally experience lower estimated prevalence rates of poor self-perceived mental health (5.1% vs. 5.3%), high self-perceived life stress (23.4% vs. 26.6%), mood disorders (3.4% vs. 7.8%) and anxiety disorders (1.9% vs. 6.2%), although differences in self-perceived mental health was insignificant (see Table 5.2). These initial findings add to previous research that supports the existence of the healthy immigrant effect (Ali, 2002; Tiwari & Wang, 2008; Xu & McDonald, 2010). However, further analysis revealed that, when considering the socio-demographic factors, immigrant adults who were male (4.9% vs. 4.9%) and employed (3.8% vs. 3.8%), and those who were middle-aged (6.8% vs. 5.9%), attached (4.7% vs. 3.9%), and had a high-range household income (4.3% vs. 3%) had equal and significantly higher odds of reporting poor self-perceived mental health (see Table 5.3), which challenges the notion of the healthy immigrant effect. This might be explained by the association of these social identities (male gender, middle age, attached relationship, employed status, higher household income) with family, financial, and social burdens for immigrant adults from traditional and patriarchal societies. Research indicates that traditional elements embedded in Asian culture, such as Confucianism, have much a bearing upon the mental health of midlife adults, who seek collective good over individual benefit by

complying with social expectations and norms (King & Bond, 1985). Middle-aged immigrant men from countries with patriarchal practices in particular are expected to pragmatically master familial, social, and financial responsibilities. Stress might result from efforts to balance one's ideals and realities, and from failure to fulfill familial and social expectations (Guruge, Khanlou, & Gastaldo, 2009; Jafari, Baharlou, & Mathias, 2010; Lu, Chauhan, & Campbell, 2015; Walton & Takeuchi, 2010), which may be particularly significant for middle-aged male economic immigrants who may initially make the decision to migrate.

Analysis of within-group differences in mental health outcomes for visible minority immigrants revealed that those who were middle-aged (6.8%), less educated (6.7%), unemployed (8.2%), had a low-range household income (8.5%), had a weak sense of community belonging (6.9%), and were longer-term immigrants (5.7%) were significantly more likely than their counterparts to report poor self-perceived mental health (see Table 5.4). Immigrants who were unattached (26.9%), more highly educated (24.6%), and had a low-range household income (32.4%) and a weak sense of community belonging (26.6%) were significantly more likely to report high self-perceived life stress (see Table 5.6). Those who were female (4.4%), unattached (4.2%), less educated (4.4%), unemployed (5.8%), had a low-range household income (7.4%), had a weak sense of community belonging (4.1%), and were longer-term immigrants (4.1%) were significantly more likely to report a diagnosed mood disorder (see Table 5.8). Immigrants who were unemployed (3%), had a low-range household income (4.4%), had a weak sense of community belonging (2.6%), and were longer-term immigrants (2.4%) were significantly more likely to report a diagnosed anxiety disorder (see Table 5.10). The above findings suggest that unattached relationship status, lower education level, unemployed status, low household income, weak sense of community belonging, and longer time since immigration were repeatedly

associated with higher odds of poor mental health outcomes. Longer-term immigrant adults' health advantage decreased with length of residency in Canada (5.7%) and converged with that of the Canadian-born white adults over time (5.3%), confirming the transitional effect reported in previous research (Bergeron, Auger, & Hamel, 2009; Tiwari & Wang, 2008).

Within-group (visible minority immigrants) multivariate logistic regression modelling revealed that when controlling for other covariates, employed status, mid- or high-range household income, and strong sense of community belonging were important protective factors against poor self-perceived mental health while longer-term immigrant status was a risk factor (see Table 5.19). Male gender, middle age, attached status, mid- or high-range household income, and strong sense of community belonging were protective factors against high life stress, while higher education level and longer-term immigrant status were risk factors (see Table 5.20). Male gender, employed status, mid- or high-range household income, and strong sense of community belonging were protective factors against mood disorders, while longer-term immigrant status was a risk factor (see Table 5.21). Employed status, mid- or high-range household income, and strong sense of community belonging were protective factors against anxiety disorders while longer-term immigrant status was a risk factor (see Table 5.22). These findings suggest that, for visible minority immigrants, male gender, employed status, mid- or high-range household income, and strong sense of community belonging were recurring protective factors against negative mental health outcomes, while longer-term immigrant status was a recurring risk factor.

Previous literature has documented the role of gender as an important determinant of mental health, with male gender being a protective factor against negative mental health outcomes (Grella & Lovinger, 2012). Gender-specific risk factors for mental health problems

that disproportionately affect women include subordinate social status, gender-based violence, socio-economic disadvantage, and poverty related to inequitable earnings and single parenthood (WHO, 2016). Research has shown that immigrant women from patriarchal societies often report poor mental health associated with inequalities in gendered roles and responsibilities in marital relationships (Guruge, Khanlou, & Gastaldo, 2009).

Results of Chi-square test revealed that individuals with a low household income fared worse in comparison to all other immigrants, in line with previous research linking underprivileged socio-economic status to poorer health and mental health (Halli & Anchan, 2005; Romans, Cohen, & Forte, 2011; Smith et al., 2007). Similarly, multivariate logistic regression analyses revealed that mid- or high-range household income protected against negative mental health outcomes. These findings should be considered in the context of immigrant pathways, with the majority of immigrants to Canada arriving as economic class immigrants, admitted through a points system based on language proficiency, educational qualifications, and professional experience (Statistics Canada, 2013b). Despite the rigorous selection, many immigrants fail to secure a gainful employment comparable to their previous qualifications and experience (George, Thomson, Chaze, & Guruge, 2015), due to non-recognition of foreign educational or professional credentials (Esses, Dietz, Bennett-Abuayyash, & Joshi, 2007; Esses, Bennett-Abuayyash, & Lapshina, 2014; George & Chaze, 2012; Guo, 2007; Mehta, Janmohamed, & Corter, 2011), language-related barriers (official language proficiency and accent discrimination) (Boyd & Cao, 2009), and lack of Canadian work experience (Slade, 2008). Immigrants are generally more likely to be under- or unemployed compared to Canadian-born counterparts regardless of higher educational attainment, and this rising earning gaps is expected to continue (Galarneau & Morissette, 2008; George, Chaze,

Fuller-Thomson, & Brennenstuhl, 2012; Puyat, 2013). Hence, immigrants are among the five groups most vulnerable to persistent low income in Canada (Fleury, 2007; Hatfield, 2013; Picot & Hou, 2014). As reflected from the current study, findings suggest that when compared to Canadian-born white adults, visible minority immigrant adults were significantly more likely to report a low household income (11.3% vs. 6.4%) and less likely to report a high household income (29.7% vs. 47.7%), despite their overall higher educational backgrounds (see Table 5.1). Stable employment and equitable income provide individuals with a sense of self-worth, self-esteem, and self-identity (Gan, 2008; Milner, LaMontagne, Aitken, Bentley, & Kavanagh, 2014; Sinacore-Guinn, 1998), while socio-economically disadvantaged positions linked to under- or unemployment, income mismatch with qualifications, and poverty are detrimental to psychological health, family relationships, and life satisfaction (Dooley, 2003; Sadavoy, Meier, Ong, & Yuk, 2004; Roh, Chang, Kim, & Nam, 2014). Interestingly, both Chi-square test and multivariate logistic regression analyses revealed that higher education qualifications were a risk factor for high life stress. This may be due to the high expectations experienced by highly educated immigrants with respect to achieving post-migratory socio-economic goals in their new country, who might experience stress when aspirations are not fulfilled despite significant efforts (Dean & Wilson, 2009).

Elements of familial and social support, measured by relationship status and sense of community belonging, were found to affect immigrants' mental health outcomes. This reflects previous findings on the relationship between social support and immigrant mental health (Chadwick & Collins, 2015; O'Mahony, Donnelly, Bouchal, & Este, 2012), which indicate that social support has a buffering effect against stressful life circumstances, such as acculturation-related stress and racial discrimination (Haque, 2010; Puyat, 2013). Immigrants, particularly

recent immigrants, often experience a lack of social support following migration, which disrupts familial support networks (George, Thomson, Chaze, & Guruge, 2015). In addition, research has shown that residing in a neighborhood with a higher immigrant concentration was linked to lower odds of depression among immigrants (Stafford, Newbold, & Ross, 2010). As such, a greater sense of community belonging may serve as a significant protective factor against poor mental health outcomes resulting from life adversities among immigrants. This might explain the better outcomes from all four mental health measures among immigrant respondents who reported having strong sense of community belonging. Nonetheless, it takes time for immigrants to re-establish these support networks in the host country. As well, a welcoming and hospitable environment is also the important factor for immigrants' successful social integration (Stafford, Newbold, & Ross, 2011).

Longer time since immigration was identified as a recurring risk factor for poor mental health outcomes, reflecting findings from previous studies reporting that longer-term immigrants lose initial mental health advantages over time and experience similar prevalence of poor mental health as local-born populations (Bergeron, Auger, & Hamel, 2009; Lou & Beaujot, 2005; Tiwari & Wang, 2008). While these findings contribute further evidence regarding decreasing differences in immigrant and native-born mental health outcomes over time (Aglipay, Colman, & Chen, 2013), it is not clear why longer-term immigrants experience an increase in mental health conditions compared to recent immigrants. One possible explanation is the cumulative effects of acculturation-related stressors (discussed in Chapter 2) experienced by longer-term immigrants over an extended period of time, negatively affecting mental health outcomes and perceptions that these problems may not be resolved through personal efforts (Berry, 2006). Future research

involving longitudinal designs is therefore needed to investigate pathways through which longer-term immigrants lose their mental health advantage.

From an intersectionality perspective, focusing only on single dimensions of social identity or inequality results in a misunderstanding of individuals' complex and interlocking social experiences, thus producing incomplete and biased results in mental health research (Veenstra, 2011). In this study, logistic regression models with two-way and three-way interaction terms revealed "atypical" trends in the effects of intersecting determinants on immigrant mental health. Cross-group two-way interaction analyses revealed that male immigrants, middle-aged immigrants, and immigrants with a mid- or high-range household income were significantly more likely to report poor self-perceived mental health than other intersecting immigrant or Canadian-born social identities. Similarly, middle-aged immigrants, immigrants with a mid-range household income, and male immigrants with high-range household income were significantly more likely to report high life stress (see Table 5.27). Similarly, middle-aged immigrants and those with a mid- or high-range household income were significantly more likely to report a mood disorder (see Table 5.29), while male immigrants were marginally more likely to report an anxiety disorder (see Table 5.31). However, cross-group three-way interaction analyses revealed contradictory results in that middle-aged male immigrants, middle-aged immigrants with a mid-range household income, and male immigrants with a mid- or high-range household income were significantly less likely to report poor self-perceived mental health than other intersecting immigrant and Canadian-born social identities (see Table 5.25). Similarly, middle-aged male immigrants, middle-aged immigrants with a mid- or high-range household income were significantly less likely to report high life stress (see Table 5.27), although male immigrants with a high-range household income were more likely to report

high life stress. Correspondingly, male immigrants with a mid-range household income, middle-aged immigrants with a mid- or high-range household income were significantly less likely to report a mood disorder (see Table 5.29). These diverse results of statistical interactions illustrate the combined effects of multiplicative social identities on immigrant mental health (Veenstra, 2011). Intersectionality theorists argue that an individual's multiple identities based on race, class, and gender are interlinked and mutually reinforced in the production of unique health and mental health outcomes (Malmusi, Borrell, & Benach, 2010; Rosenfield, 2012; Seng et al., 2012).

With respect to within-group interaction analysis for visible minority immigrants, two-way interaction analyses revealed that middle-aged men and middle-aged adults with a mid-range household income were less likely to report poor self-perceived mental health (see Table 5.26). Middle-aged men, middle-aged adults with a mid- or high-range household income were less likely to report life stress (see Table 5.28). Similarly, middle-aged adults with a mid-range household income were less likely to report a mood disorder (see Table 5.30). However, within-group three-way interaction analyses revealed contradictory results in that middle-aged men with a mid- or high-range household income were most likely to report poor perceived mental health (see Table 5.26). Similarly, middle-aged men with a mid-range household income most likely to report high life stress (see Table 5.28), possibly due to familial, social, and economic pressures facing middle-aged male immigrants, especially for those coming from countries where men are traditionally expected to shoulder the role of primary family breadwinners (as discussed above) (Guruge, Khanlou, & Gastaldo, 2009). These intersectional analysis findings of three-way interactions contradict previous research findings that men of a higher social position and income generally experience better psychological health than their counterparts (Chen et al., 2012),

indicating the importance of examining the combined effects of social identities, which may result in different, potentially counter-intuitive findings. Findings of the above two-way and three-way interaction analyses cross-group and within-group in this study contribute to explain variability in immigrant mental health outcomes above and beyond the contributions of the main effects of a single social identity commonly found in health inequality studies (Veenstra, 2011).

### **6.2.2 Differences in mental health service use, significant factors, and intersecting effects**

Preliminary cross-group results of Chi-square test of mental health service use revealed that visible minority immigrant adults were generally less likely than Canadian-born white adults to have used mental health services (5.4% vs. 12.9%) (see Table 5.2), initially supporting the healthy immigrant effect perspective that visible minority immigrants enjoy better mental health and are less in need of support services (Tiwari & Wang, 2008; Wu, Penning, & Schimmele, 2005). However, when stratified by specific mental health needs and socio-demographic factors as shown below, this crude conclusion is challenged.

Compared to their Canadian-born counterparts, visible minority immigrant adults with poor self-perceived mental health (33.3% vs. 54.9%;  $p < .001$ ) or high self-perceived life stress (11.1% vs. 20.9%;  $p < .001$ ) were significantly less likely to have used mental health services, even when considering socio-demographic variables (see Tables 5.12 and 5.13). This supports previous research findings that immigrants are less likely than native-born to use mainstream mental health services (Nguyen & Lee, 2012). Further analysis revealed, however, that immigrant adults with a diagnosed mood disorder (68.3% vs. 66.9%;  $p = .580$ ) or anxiety disorder (48.4% vs. 52.8%;  $p = .210$ ) were just as likely as Canadian-born white adults to use mental health services (see Table 5.12), except immigrant adults with an anxiety disorder and a mid-range

household income were less likely than Canadian-born white adults to report using services (37% vs. 52%) (see Table 5.16). Visible minority immigrants with a mood disorder who were female (75.4% vs. 71%), younger (71.8% vs. 71.5%) and middle-aged (63.1% vs. 62.4%), unattached (77.1% vs. 68%), had a post-secondary education (72% vs. 69.6%), were unemployed (77.5% vs. 67.7%), and had a low-range household income (76.2% vs. 71.8%) and strong sense of community belonging (70% vs. 66.3%) were more likely to have used mental health services than Canadian-born white respondents, although significant difference was only found in relationship and employment status (see Table 5.16). The above findings contradicted with the pervasive healthy immigrant effect perspective on mental health service use. Potential explanations for these findings are discussed below.

Female or unattached immigrants with a diagnosed affective disorder may already be in the healthcare system and may be more willing to accept professional and community-based mental health services where they could find some degree of support (Weiber, Tengland, Berglund, & Eklund, 2014), while immigrants with stronger social networks may be more open to emotional or informational support (McCall, Reboussin, & Rapp, 2001) in the form of advice and mental health information provided by community members. These study findings reflect previous research reporting that community involvement is positively associated with mental health-related service use (Maulik, Eaton, & Bradshaw, 2011; Smolak, Gearing, Alonzo, Baldwin, & Harmon, 2013). Visible minority immigrants with higher level of education may be more receptive to “Western” approaches to mental health treatment such as pharmacological treatment or psychotherapy (Gonzalez, Alegria, Prihoda, Copeland, & Zeber, 2011), while immigrants who are unemployed and have a lower household income may have limited personal

resources to deal with their mental health problems but already be in contact with the social security system, facilitating access to health services.

Within-group analysis of mental health service use revealed that among visible minority immigrant adults specifically, those with poor self-perceived mental health who had lower education (22.4% vs. 38.5%), were employed (26.5% vs. 40.2%), had a mid- or high-range household income (26.2% and 38.7% vs. 55.7%), and had a strong sense of community belonging (25.9% vs. 40.3%) were significantly less likely to report using mental health services (see Table 5.14). Immigrant adults with high self-perceived life stress who were male (8% vs. 13.6%), attached (9.6% vs. 13.6%), employed (7.9% vs. 19.1%), had a mid- or high-range household income (9.1% and 9.2% vs. 27.3%), had a strong sense of community belonging (8.5% vs. 14.3%), and were short-term immigrants (8.4% vs. 12.6%) were significantly less likely to use mental health services (see Table 5.15). Immigrants with mood disorders who were male (8% vs. 13.6%), attached (52.9% vs. 75.4%), and employed (62.5% vs. 77.1%) were significantly less likely to use mental health services (see Table 5.17). Immigrants with anxiety disorders who had a strong sense of community belonging (32.2% vs. 63.9%) were significantly less likely to use mental health services (see Table 5.18). These findings suggest that among visible minority immigrants with mental health needs, male gender, attached relationship status, employed status, mid- or high-range household income, and strong sense of community belonging are repeatedly associated with lower service use rates.

Hierarchical logistic regression model analyses revealed that when controlling for predisposing and enabling factors (gender, age, education, employment, length of residence in Canada, household income, relationship status, sense of community), male gender, employed status, and mid- or high-range household income were significant factors associated with lower

rates of service use, while the four mental health needs were associated with higher rates of service use. Immigrants with a diagnosed mood disorder in particular had greatest odds (OR=28.240) of using mental health services compared to those with other mental health needs (see Table 5.23). These results are in line with findings of previous studies that immigrants with mental health needs and previously in contact with healthcare systems are more likely to seek professional help (Kim et al., 2010; Tiwari & Wang, 2008). Interaction analyses revealed that male immigrants with a mood disorder and a high-range household income, and with an anxiety disorder and a mid-range household income, were significantly less likely to use mental health services compared to other intersecting immigrant social identities (see Tables 5.35 and 5.36). This suggests that immigrant men with higher socio-economic status are more likely to refrain from seeking formal help despite having a professional-assessed mental health need.

Potential explanations for male immigrants' underuse of mental health service might be related to the influence of traditional or patriarchal cultural values of masculinity and commitment to familial and social responsibilities. Immigrant men may be expected, and expect themselves, to be capable of coping with life adversity at the personal and familial level, including mental health problems, and may therefore rely on personal resources before accessing external formal support (Lu, Chauhan, & Campbell, 2015). Seeking formal mental health care may also challenge the concept of "face" and reputation, which may be particularly important for men who see themselves as the representative and head of their family to which members look for support (Zhang et al., 1998). Immigrants in attached relationships or with a strong sense of community belonging, reflecting availability of familial and social support, may first seek assistance from family members, close relatives, or friends, whom they consider their primary and constant source of care (Lu, Chauhan, & Campbell, 2015). Previous research studies have

showed that immigrants often seek informal help for mental health concerns from family members, friends, religious leaders, and traditional healers rather than approaching formal healthcare systems (Fenta, Hyman, & Noh, 2006; Tieu & Konnert, 2014). Immigrants who are employed may be reluctant to seek mental health-related services with a fear of losing their jobs due to prejudice or stigma on the part of employers and discrimination against mental illness in the labour market (Stuart, 2006). These represent prevalent concerns among employees from “non-Western” countries (Tsang, Angell, Corrigan, Lee, & Shi, 2007). Immigrants may also lack sufficient time to seek mental health treatment due to long hours of work required to sustain livelihoods in their host country, given that immigrants with multiple jobs work longer hours than Canadian-born multiple job holders (Gilmore, 2009). Immigrants with better financial resources (e.g. mid- or high-range household income) may have access to a greater range of care options, including alternative treatment options such as ethno-cultural or religious remedies and supports, which might affect their use of mainstream health services (Nilssen, Strand, Fjellbirkeland, Bartes, & Brustugun, 2016; Obasi, Njoku, & Ajaraogu, 2015; Tieu & Konnert, 2014). Other noteworthy findings of the within-group analysis revealed that only short-term immigrants with high life stress were significantly less likely than longer-term immigrants to use mental health services. Moreover, differences in service use between short- and long-term immigrants with poor self-perceived mental health, mood disorders, and anxiety disorders were not significant (see Tables 5.14, 5.15, 5.17, and 5.18). These findings were contrary to previous research that longer-term immigrants are more likely than short-term immigrants to use mental health services, due to deteriorating mental health over time in Canada (Durbin, Moineddin, Lin, Steele, & Glazier, 2015). In relation to mental health service use, these findings challenge the transitional effect, as well as the healthy immigrant effect.

In summary, the current study findings challenge the pervasive concepts of the healthy immigrant effect and transitional effect in the context of mental health and service use outcomes among visible minority immigrants, calling attention to different social contextual factors that individually and concomitantly influence mental health and service use experiences. As culture is an important part of the structural whole (Mullaly, 2002), its influences on the mental health status and help-seeking behaviours of visible minority immigrants are not to be excluded. Rather, culture should be viewed in intersection with other social categories of disadvantage in impacting mental health and care response (Rossiter & Morrow, 2011). The study findings also clearly demonstrate the heterogeneity of mental health needs and help-seeking patterns among visible minority immigrants, indicating that considering visible minority immigrants as a homogeneous group risks overlooking their unique challenges arising from their intersecting social locations in their host country.

### **6.3 Study Strengths and Limitations**

This section outlines some of the strengths and limitations of the study. While there were a number of strengths inherent in the 2009-2010 CCHS dataset as well as the study design, certain limitations must be acknowledged when interpreting the results of this study.

#### **6.3.1 Strengths of the study**

The sample size and generalizability represent key strengths. The 2009-2010 CCHS provided a nationally representative database with a sample size large enough to allow multivariate logistic regression analysis (Islam, Khanlou, & Tamim, 2014) and the sample size was weighted, which increases the generalizability of the findings (Blair & Schneeberg, 2014). The availability of a wide variety of variables in the CCHS dataset represents another key strength. The multiple variables enabled the analysis of different combinations of predictor

variables as social contextual factors influencing mental health status and service use. This study differed from previous Canadian empirical mental health research, which has focused primarily on one or two outcome variables such as self-rated mental health and depressive episodes (Ali, 2002; Cahdwick & Collins, 2015). This study used multiple measures of mental health outcomes, including both self-assessed (self-perceived mental health and life stress) and professional-assessed (diagnosed mood and anxiety disorders) perspectives. This dual approach contributes to a more comprehensive understanding of population mental health while minimizing the likelihood of misinterpretation across all responses (Chadwick & Collins, 2015; Islam, Khanlou, & Tamim, 2014). Moreover, review of literature identified that Canadian research on immigrant mental health has rarely examined life stress as an important mental health outcome and a prelude to more serious mental health problems, and this is a key contribution of the current study.

Finally, this study's approach to population analysis reflects the strength of the research. This study focused on visible minority immigrant adults aged 18 to 44 (younger age group) and 45 to 64 (middle-aged group), considering the effects of age and racial and cultural background, whereas previous research has generally aggregated immigrants of all age groups or different racial and cultural backgrounds (white and visible minority immigrants) in analysis, disregarding life stage and racial and cultural variations in mental health outcomes (Aglipay, Colman, & Chen, 2013; Lou & Beaujot, 2005; Stafford, Newbold, & Ross, 2010). The review of recent literature revealed no other studies involving a cross-group (visible minority immigrant and Canadian-born white adult groups) and within-group comparison of multiple mental health outcomes and mental health service use in Canada using an intersectionality approach, representing another key contribution of this study.

### **6.3.2 Limitations of the study**

The design of the CCHS influences the limitations of the current study. Based on a cross-sectional design, the CCHS is not the most ideal dataset for examining the effects of the time-sensitive migration variable on immigrant mental health, as it limits the extent to which causal inferences can be drawn (Blair & Schneeberg, 2014). As such, the analysis results cannot determine whether relationships between variables are causal in nature (Chadwick & Collins, 2015). Specifically, this study cannot confirm whether key findings (generally lower rates of negative mental health outcomes and service utilization among immigrant adults) are the results of selectivity (e.g. self-selection, stringent federal health screening) or of cumulative effects of social disadvantages (Lou & Beaujot, 2005). A longitudinal study design following cohorts of immigrants and Canadian-born counterparts over time may help to better explain the impact of migration variables on visible minority immigrants' mental health outcomes (Islam, Khanlou, & Tamim, 2014).

Another limitation related to the CCHS design is its retrospective nature, with respondent answers subject to recall bias (Islam, Khanlou, & Tamim, 2014). Findings regarding mental health outcomes and service use may reflect underestimates, as some respondents may have been unable to recall their diagnoses or service use over the 12 months preceding the survey (Puyat, 2013). As with all epidemiological surveys, calculated prevalence rates for mental health outcomes and service use are only estimates and, as such, caution should be exercised when interpreting the findings (Islam, Khanlou, & Tamim, 2014).

With respect to the study population, a number of potentially significant variables were not included in the original CCHS. The survey did not collect information on immigration streams or categories, such as economic class, family class, or refugee class, which could be of

significance given the nature of immigration and settlement processes could affect immigrants' mental health outcomes (Aglipay, Colman, & Chen, 2013). For example, refugees generally have more traumatic mental health trajectories compared to those migrating based on self-determination (Mental Health Commission of Canada, 2009; Simich, Hamilton, & Baya, 2006). In addition, mental wellbeing may be affected by the voluntary nature of immigration, which may differ for principal applicants (voluntary) or family dependants (potentially involuntary). These distinctions cannot be assessed based on existing CCHS data.

The CCHS public use microdata files do not include specific data on immigrants' country of origin and ethnicity and, as such, this study analyzed visible minority immigrants and Canadian-born white adults as homogenous groups. Prevalence estimates for mental health challenges and service use may differ based on country of origin or ethnicity, and the analysis of aggregated samples may mask intra-group variations in mental health outcomes or service use (Pan & Carpiano, 2013; Puyat, 2013). Additionally, self-identified classifications as 'white' or 'visible minority' are broadly defined and subject to possible misclassification bias. Despite these limitations, this variable was sufficient to address the objectives of the current study, which was to examine differences in mental health outcomes and service use between visible minority immigrant and Canadian-born white adults (Aglipay, Colman, & Chen, 2013).

Other limitations in CCHS variables were identified, including a lack of variables focusing on pre-migration circumstances, childhood/early life experiences, individual lifetime history of mental health problems, religion, spirituality, and post-migratory racism and discrimination, all of which could significantly affect immigrants' mental health outcomes and service utilization rates (Ali, 2002; Islam, Khanlou, & Tamim, 2014). Moreover, adjusted household income that takes into consideration the household size could not be ascertained in the

public use microdata files as annual household income from all sources reported by respondents were regrouped into income range by Statistics Canada. As such, low-income cut-off (50% below the median adjusted household income) could not be calculated for the current analysis which could have a strong implication for mental health outcomes and mental health service use. Moreover, people with low income may be less likely to take part in population health surveys. Population weights developed by Statistics Canada are unable to correct for this selection bias (Islam, Khanlou, & Tamim, 2014).

Limitations related to data available for mental health outcomes were also identified. In the CCHS, important mental health outcome variables such as depressive episode and suicidal thoughts and attempts were optional for the 13 Canadian provinces and territories, and data was collected in only four to seven provinces and territories. As such, these two variables were not included in the current study. Similarly, social support (a potentially significant predictor variable) was an optional variable, and data was collected in only five provinces and territories. Due to the limited available data on social support, marital status and sense of community belonging were used as proxy measures for social support in the current study (Islam, Khanlou, & Tamim, 2014).

The reliability of data on mental health conditions may be limited by the self-reported measures (e.g. self-reported diagnoses of mood or anxiety disorders by a health care professional) and socio-cultural influences on self-reporting. Responses may have been affected by cultural differences in the understanding and interpretation of survey questions related to mental health, as well as willingness to report a mental health problem or diagnosis, potentially contributing to the lower rates of negative mental health outcomes reported among immigrant adults (Ali, 2002). With respect to cultural understandings, for example, past studies have

consistently reported that people from socio-culturally ‘collective’ countries tend to express depressive symptoms or psychological distress in the form of physical health problems (somatisation) (Wu & Schimmele, 2005), while other recent research has found that study participants frequently misunderstood the definition of mental health as mental disorders, resulting in the non-disclosure of personal mental condition (Jafari et al., 2010). Moreover, self-reported data on mental health outcomes is subject to social desirability bias (Islam, Khanlou, & Tamim, 2014), and social stigma associated with mental illness may lead to under-reporting and concealment of diagnoses (Islam, Khanlou, & Tamim, 2014). More objective or reliable data on mental health diagnoses might be obtained through, for example, a review of medical records or use of diagnostic interviews (Aglipay, Colman, & Chen, 2013).

#### **6.4 Implications of the Study Findings**

Despite the increasing diversity of Canada’s population, and the significant impact of migration, settlement, and integration experiences on the mental health of diverse populations, the mental health and help-seeking experiences and needs of ethno-cultural and racialized populations are not well reflected in national census and survey data (McKenzie, Hansson, Tuck, & Lurie, 2010), in Canadian mental health research, or in education and training content for helping professions such as social work (Villalba, 2009). Although a small number of national studies have examined mental health disparities between visible minority immigrant and native-born populations in Canada (Ali, 2002; Tiwari & Wang, 2008; Aglipay, Colman, & Chen, 2014), they lack the depth necessary for a thorough understanding of mental health outcomes and service utilization patterns among visible minority immigrants. A comprehensive understanding of visible minority immigrants' mental health experiences, challenges, needs, and protective and risk factors is necessary to inform the development of structurally and culturally sensitive

intervention strategies and education and training programs for helping professions to ensure that cross-cultural intervention competence do not simply remain a topic for classroom discussion.

The current study can address some of these gaps in existing knowledge, based on contemporary analysis of the mental health and service use experiences of visible minority immigrants. Canada's current immigrant populations are quite different from those arriving in previous decades, in terms of regions and countries of origin, cultural, religious, and linguistic backgrounds, and intersecting migration and settlement experiences. The current study therefore offers useful contemporary empirical evidence to social work educators and program planners, health and social service practitioners and service developers, and social and health policy makers involved in supporting the mental wellbeing of visible minority immigrants in Canada.

#### **6.4.1 Implications for social work education and practice, and social and health policies**

Given the changing demographics and increasing diversity of the Canadian population, it is almost inevitable that social and health care professionals will work with ethno-cultural and visible minority groups (Ahmed, Wilson, Henriksen Jr., & WindWalker Jones, 2011; Yan, 2010), and a comprehensive understanding of the current mental health experiences and needs of visible minority immigrants is necessary for developing effective intersectionality-informed and culturally sensitive practitioner training curricula, social work interventions, and responsive social and health policies.

Based on the key research findings of this study, a number of recommendations can be made in the areas of social work education and training, social work intervention, and social and health policy. With respect to social work education and training, the research findings illustrate the need to equip social work students with current knowledge regarding the intersection of

different social identities of disadvantage and their impacts on mental health, settlement and acculturation-related challenges affecting immigrants' wellbeing, and the health and mental health of visible minority immigrants, including accessibility and systemic barriers to quality mental health care. Similar content should also be included in ongoing professional development for practitioners (Rositter & Morrow, 2011). As intersectionality-informed approach is inextricably linked with “distributive issues of injustice” (Mullaly, 2002, p. 42), social work students and professionals should be provided with knowledge and skills needed for anti-oppressive as well as culturally competent practice (Rositter & Morrow, 2011). This can be achieved by raising awareness of structural injustice, power differential and domination issues and challenging Euro-centric cultural lenses in order to fully understand the disparities in life experiences between visible minority immigrants and Canadian-born individuals (Mullaly, 2002; Villalba, 2009; Yan & Lam, 2000; Yan, 2010).

Recommendations for strengthening social work practice with visible minority immigrants should focus on consciousness-raising (with respect to social determinants of mental health through the lens of intersectionality), mental health promotion, illness prevention, and intervention strategies at personal or interpersonal, cultural, and structural levels (Mullaly, 2002). Strategies that focus on either the individual level or the societal level are limited whereas intersectional interventions operate at the aforementioned three levels simultaneously, with each reinforcing the other (Mullaly, 2002). Study findings suggest that strong social support is significantly associated with good mental health outcomes, given that visible minority immigrants who were unattached, and had a weak sense of community belonging were more likely to report poorer mental health outcomes. Therefore, mental health promotion might involve efforts to strengthen social support as well as community participation among visible

minority immigrants and local populations. In addition, community education initiatives could focus on enhancing understanding of mental health problems and illnesses in the context of intersecting social determinants, specific protective and risk factors for immigrants (focusing on community support and belonging), and access to available health and social care resources, targeting neighborhoods with a high concentration of visible minority populations, or specific immigrant communities. Awareness-raising and social support programs might be implemented in collaboration with ethnic community or faith-based institutions and mainstream community centers, engaging both visible minority immigrants and the general public with mental health needs as well as their family members and friends (Lin, 2010). These strategies would promote mutual understanding between different ethno-cultural groups and reduce discrimination against people with mental illness and racial bias.

The study findings revealed that immigrants who were less educated, unemployed, and had lower household income were generally more likely to report poorer mental health outcomes, reflecting the need for mental health interventions and policies targeting immigrants experiencing socio-economic disadvantages. However, immigrants with a higher educational level were more likely to report life stress, and those with a mid-range household income (particularly men) were more likely to report poor self-perceived mental health outcomes. These results challenge assumptions that immigrants with greater socio-economic advantages will have better mental health. In addition to supporting immigrants of lower socio-economic status, intervention efforts should also focus on attending to mental health related stressors among highly educated and high-income immigrants (Islam, Khanlou, & Tamim, 2014). This might include addressing socio-economic sources of stress (through targeted policies) such as workplace prejudice and discrimination against immigrants with mental health needs, and

recognition of foreign educational and professional credentials, as well as under- or unemployment and income mismatch with educational qualifications.

Even when services and policies exist, a number of factors can limit service utilization among visible minority immigrants with mental health needs. This study revealed that immigrants with poorer self-perceived mental health outcomes were less likely than those with diagnosed mood and anxiety disorders to report using mental health services. Immigrant men with higher income and diagnosed mood or anxiety disorders were among the least to report using services, indicating the need for mental health interventions targeting this cohort. Efforts might focus on recognizing and removing the structural barriers that hinder visible minority immigrants to benefit from mainstream healthcare systems (Mental Health Commission of Canada, 2009).

Finally, visible minority immigrants with a longer length of residency in Canada were found to be consistently more likely to report poorer mental health outcomes. This illustrates the importance of focusing efforts on longer-term immigrants, who may often be perceived as less vulnerable than newly-arrived immigrants, therefore receiving less practice and policy attention. The impacts of changing social identities and experiences on immigrants' mental health over time should be considered in the training programs for social and health care professionals, in the development of services and interventions, and in the formulation of health and social policies.

These intersectionality-informed policy and practice recommendations are in line with the service improvement goals outlined by the Service Systems Advisory Committee of the Mental Health Commission of Canada. This committee has acknowledged the importance of intersectional perspective, affirming that “we are all multi-faceted individuals, and our individual identities are shaped by the many intersecting dimensions of our lives” (Mental Health Commission of Canada, 2009, p. 51). It has also attempted to develop an equitable Mental

Health Strategy for improving mental health of individuals from immigrant, refugee, and ethno-cultural and racialized (IRER) groups, who often experience poorer access to mental health care (McKenzie et al., 2010; Mental Health Commission of Canada, 2009). Successful efforts to promote positive mental health of visible minority immigrants, strengthen their social and health care responses, and facilitate policy change requires collaborative advocacy involving immigrant communities and institutions, community leaders, health and social service planners and practitioners, academics from education and training institutions, and policy makers, building on strong research evidence.

#### **6.4.2 Implications for future research**

The study findings, along with the limitations outlined above, can inform directions for future research on visible minority immigrant mental health and service utilization. This study drew on quantitative survey data to examine mental health outcomes and service use among visible minority immigrant adults. While common measures of mental health were used, these measures originate from a Western concept of mental health, and the cultural relevance and validity of this concept for visible minority immigrants of diverse cultural background may be limited. Future research might therefore adopt a qualitative or mixed methods approach to validate these measures or concepts of mental health among diverse ethno-cultural immigrant populations and to develop a culturally relevant approach to the assessment of mental health.

The study findings revealed that among visible minority immigrants, poor mental health and service utilization outcomes are the result of complex intersecting social identities and processes. Qualitative or mixed methods research involving in-depth interviews might be helpful in understanding the dynamic relationships between various socio-demographic determinants and visible minority immigrants' mental health status and help-seeking patterns. In addition,

future studies might also adopt a longitudinal design, in order to understand the pathways through which longer-term immigrants lose their mental health advantage over time, given that longer-term immigrant status was identified as a recurring risk factor for poor mental health.

While this study focused on visible minority immigrants as a general population, they represent a tremendously heterogeneous group with diverse pre- and post-migration and settlement experiences. Future research might focus on the mental health outcomes and service experiences of immigrants from specific countries of origin in order to better understand their unique experiences and trajectories. Moreover, other important social contextual factors (as mentioned in the limitations of the current study) such as immigration categories, childhood/early life events, family or personal history of mental health issues, culture, religion, spirituality, pre-migration stressors, and post-migratory experiences of individual or institutional discrimination and racism could interact to influence the mental health outcomes and help-seeking behaviours of visible minority immigrants (Ali, 2002; Bernstein et al., 2011; Khanlou & Tamim, 2014; Rossiter & Morrow, 2011). Policy makers and researchers therefore must include the above variables when formulating national mental health surveys in the future. Exclusion of these significant intersecting social identities in population-based mental health research potentially marginalizes visible minority immigrants in terms of misinterpreting their mental health and care needs. Besides, the effects of specific socio-demographic variables identified as predictors of mental health and service use outcomes should be explored in further detail. For example, the mental health experiences of immigrants with higher education and income levels are generally neglected in current research agendas, but these emerged as key mental health influences. Finally, most studies on immigrant mental health have focused on negative mental health outcomes, while the agency, coping strategies, and resiliency of visible minority

immigrants remain under-researched. Future research, involving qualitative or mixed methods approaches, might further investigate these areas, to identify approaches to strengthening mental health supports as well as avoiding the characterization of immigrants as fiscal or service “burden” in their host country.

## **6.5 Summary of the Study**

Drawing on the social determinants of health and intersectionality framework, this study examined the relationship between socio-demographic variables and mental health outcomes (focusing on self-perceived mental health and life stress and diagnosed mood and anxiety disorders) and mental health service utilization among visible minority immigrant adults in Canada. Data were drawn from the 2009-2010 CCHS, which included a sample of 5,870 visible minority immigrant and 68,932 Canadian-born white adults aged 18 to 64 from 13 Canadian provinces and territories. Visible minority immigrants were significantly less likely than Canadian-born white adults to report high self-perceived life stress, and mood or anxiety disorders. However, immigrants who were male, middle-aged, attached, employed, and had a high-range household income were equally or significantly more likely to report poor self-perceived mental health than their Canadian-born counterparts. Within-group multivariate logistic regression modeling revealed that male gender, employed status, mid- or high-range household income, and strong sense of community belonging were recurring protective factors against poor mental health, while longer-term immigrant status was a recurring risk factor. Analysis of interactions showed that respondents who were middle-aged visible minority immigrants and visible minority immigrants with a mid-range household income were commonly more likely to report poor self-perceived mental health, high self-perceived life stress, and diagnosed mood disorders, demonstrating the combined effects of intersecting social

identities. Visible minority immigrants with poor self-perceived mental health and high self-perceived life stress were less likely than Canadian-born adults to report using mental health services, while those with mood or anxiety disorders were as likely to have used services. Immigrant men with a higher household income and a mood or anxiety disorder were less likely to use mental health services, compared to other intersecting immigrant social identities.

Despite the limitations outlined above, this study makes several important contributions to the literature on visible minority immigrant mental health. First, the study examined multiple mental health outcomes and help-seeking patterns within this under-researched population using an intersectionality perspective, examining the combined effects of multiple social identities both within the immigrant population and in comparison to Canadian-born white adults. Results suggest unconventional trends in immigrant mental health and service use outcomes, challenging assumptions about the healthy immigrant effect and transitional effect and contributing new empirical evidence to current literature. Second, the study findings have important implications for social work training, practice, and policies, and can enhance understanding of visible minority immigrant mental health on the part of both immigrant communities and practitioners and policy makers as well as informing coordinated efforts to improve visible minority immigrant adults' mental health outcomes and access to mainstream healthcare system in communities across Canada.

## References

- Abe-Kim, J., Takeuchi, D., Hong, S., Zane, N., Sue, S., Spencer, M.S., Appel, H., Nicdao, E., Alegria, M. (2007). Use of mental health-related services among immigrant and US-born Asian Americans: Results from the National Latino and Asian American Study. *American Journal of Public Health, 97*(1), 91-98.
- Abe-Kim, J., Takeuchi, D., & Hwang, W. (2002). Predictors of help seeking for emotional distress among Chinese Americans: Family matters. *Journal of Consulting and Clinical Psychology, 70*(5), 1186-1190.
- Aglipay, M., Colman, I., & Chen, Y. (2013). Does the healthy immigrant effect extend to anxiety disorders? Evidence from a nationally representative study. *Journal of Immigrant Minority Health, 15*, 851-857.
- Ahmed, S., Wilson, K.B., Henriksen, Jr., & Windwalker Jones, J. (2011). What does it mean to be a culturally competent counselor? *Journal for Social Action in Counseling and Psychology, 3*(1), 17-28.
- Ali, J. (2002). Mental health of Canada's immigrants. *Health Reports, 13*, 1-12.
- Ali, J.S., McDermott, S., & Gravel, R.G. (2004). Recent research on immigrant health from Statistics Canada's population surveys. *Canadian Journal of Public Health, 95*(3), 19-23.
- Allin, S., Grignon, M., & Le Grand, J. (2010). Subjective unmet need and utilization of health care services in Canada: What are the equity implications? *Social Science & Medicine, 70*(3), 465-472.
- Alvidrez, J. (1999). Ethnic variations in mental health attitudes and service use among low-income African American, Latina, and European American young women. *Community Mental Health Journal, 35*, 515-530.
- Andersen, R., & Newman, J. F. (1973). Societal and individual determinants of medical care utilization in the United States. *The Milbank Quarterly: Health and Society, 51*(1), 95-124.

- Andersen, R. M. (1995). Revisiting the behavioral model and access to medical care: does it matter? *Journal of Health and Social Behavior*, 36(1), 1-10.
- Aroian, K.J., Wu, B., & Tran, T.V. (2005). Health care and social service use among Chinese immigrant elders. *Research in Nursing and Health*, 28(2), 95-105.
- Barry, D.T., & Grilo, C.M. (2003). Cultural, self-esteem, and demographic correlates of perception of personal and group discrimination among East Asian immigrants. *American Journal of Orthopsychiatry*, 73(2), 223-229.
- Bauer, G. (2014). Incorporating intersectionality theory into population health research methodology: challenges and the potential to advance health equity. *Social Science & Medicine*, 110, 10-17.
- Beiser, M. (2005). The health of immigrants and refugees in Canada. *Canadian Journal of Public Health*, 96, S30-S44.
- Beiser, M. (2010). The mental health of immigrant and refugee children in Canada: A description and selected findings from the New Canadian Children and Youth Study. *Canadian Issues*, 2010, 103-107.
- Beiser, M., & Hou, F. (2006). Ethnicity identity, resettlement stress and depressive affect among Southeast Asian refugees in Canada. *Social Science & Medicine*, 63, 137-150.
- Beiser, M., Hou, F., Hyman, I., & Tousignant, M. (2002). Poverty, family process, and the mental health of immigrant children in Canada. *American Journal of Public Health*, 92(2), 220-227.
- Beiser, M., Zilber, N., Simich, L., Youngmann, R., Zohar, A.H., Taa, B., & Hou, F. (2011). Regional effect on the mental health of immigrant children: Results from the New Canadian Children and Youth Study (NCCYS). *Health & Place*, 17(3), 822-829.

- Belsky, J., Ruttle, P.L., Boyce, W.T., Armstrong, J.M., & Essex, M.J. (2015). Early adversity, elevated stress physiology, accelerated sexual maturation, and poor health in females. *Developmental Psychology, 51*(6), 816-822.
- Beneria, L., Diana Deere, C., & Kabeer, N. (2012). Gender and international migration: Globalization, development, and governance. *Feminist Economics, 18*(2), 1-33.
- Benzeval, M., Judge, K., & Whitehead, M. (1995). *Tackling inequalities in health: An agenda for action*. London: Kings Fund.
- Bergeron, P., Auger, N., & Hamel, D. Weight, general health and mental health: status of diverse subgroups of immigrants in Canada. *Canadian Journal of Public Health, 100*(3), 215-220.
- Bergin, M., Wells, J.S.G., & Owen, S. (2008). Critical realism: a philosophical framework for the study of gender and mental health. *Nursing Philosophy, 9*(3), 169-179.
- Bernstein, K.S., Park, S., Shin, J., Cho, S., & Park, Y. (2011). Acculturation, discrimination and depressive symptoms among Korean immigrants in New York City. *Community Mental Health Journal, 47*(1), 24-34.
- Berry, J.W. (1997). Immigration, acculturation, and adaptation. *Applied Psychology: An International Review, 46*(1), 5-68.
- Berry, J.W. (2001). A psychology of immigration. *Journal of Social Issues, 57*(3), 615-631.
- Berry, J.W. (2005). Acculturation: living successfully in two cultures. *International Journal of Intercultural Relations, 29*(6), 697-712.
- Berry, J.W. (2006). Stress perspectives on acculturation. In D.L. Sam & J.W. Berry (Eds.), *The Cambridge handbook of acculturation psychology* (pp. 43-57). Cambridge, UK: Cambridge University Press.
- Berry, J.W. (2008a). Globalization and acculturation. *International Journal of Intercultural Relations, 32*(4), 328-336.

- Berry, J.W. (2008b). Acculturation and adaptation of immigrant youth. *Canadian Diversity*, 6(2), 50-53.
- Bertakis, K. D., Azari, R., Helms, L. J., Callahan, E. J., & Robbins, J. A. (2000). Gender differences in the utilization of health care services. *The Journal of Family Practice*, 49(2), 147-152.
- Bhattacharya, G. (2011). Global contexts, social capital, and acculturation stress: experiences of Indian immigrant men in New York City. *Journal of Immigrant and Minority Health*, 13(4), 756-765.
- Bhugra, D. (2004). Migration and mental health. *Acta Psychiatr Scand*, 109(4), 243-258.
- Bhugra, D., & Gupta, S. (Eds.) (2011). Migration and mental health. UK: Cambridge University Press.
- Blackwell, D.L., Martinez, M.E., Gentleman, J.F., Sanmartin, C., & Berthelot, J.M. (2009). Socioeconomic status and utilization of health care services in Canada and the United States: Findings from a binational health survey. *Medical Care*, 47(11), 1136-1146.
- Blair, A.H., & Schneeberg, A. (2014). Changes in the 'healthy immigrant effect' in Canada: Are recent immigrants healthier than they were a decade ago? *Journal of Immigrant and Minority Health*, 16(1), 136-142.
- Blanco, C., Patel, S. R., Liu, L., Jiang, H., Lewis-Fernandez, R., Schmidt, A. B., et al. (2007). National trends in ethnic disparities in mental health care. *Medical Care*, 45, 1012–1019.
- Blane, D., Brunner, E., Wilkinson, R. (1996). Health and social organization: Towards a health policy for the twenty-first century. London: Routledge.
- Bowleg, L. (2012). The problem with the phrase women and minorities: intersectionality – an important theoretical framework for public health. *American Journal of Public Health*, 102(7), 1267-1273.

- Bowling, A. (2009). *Research methods in health: Investigating health and health services* (3<sup>rd</sup> ed.). England: Open University Press.
- Boyd, M., & Cao, X. (2009). Immigrant language proficiency earnings, and language policies. *Canadian Studies in Population*, 36(1-2), 63-86.
- Boyd, M., & Vickers, M. (2000). 100 years of immigration in Canada. *Canadian Social Trends*, 2000, 2-12.
- Bryant, T., Leaver, C., & Dunn, J. (2009). Unmet healthcare need, gender, and health inequalities in Canada. *Health Policy*, 91(1), 24-32.
- Burner, E., & Marmot, M.G. (2006). Social organization, stress and health. In M.G. Marmot, & R.G. Wilkinson (Eds.), *Social determinants of health* (pp. 6-31). Oxford: Oxford University Press.
- Caiola, C., Docherty, S.L., Relf, M., & Barroso, J. (2014). Using an intersectional approach to study the impact of social determinants of health for African American mothers living with HIV. *Advances in Nursing Science*, 37(4), 287-298.
- Cairney, J., & Boyle, M. H. (2004). Home ownership, mortgages, and psychological distress. *Housing studies*, 19(2), 161-174.
- Cairney, J., Boyle, M., Offord, D. R., Racine, Y. (2003). Stress, social support and depression in single and married mothers. *Social Psychiatry and Psychiatric Epidemiology*, 38(8), 442-449.
- Cairney, J., Veldhuizen, S., Vigod, S., Streiner, D.L., & Wade, T.J. (2014). Exploring the social determinants of mental health service use using intersectionality theory and CART analysis. *Journal of Epidemiol Community Health*, 68(2), 145-150.
- Calnan, M. (2013). Quantitative survey methods in health research. In M. Saks, & J. Allsop (Eds.), *Researching health: Qualitative, quantitative and mixed methods* (2<sup>nd</sup> ed., pp. 190-215). London: SAGE Publications Ltd..

- Carbado, D.W., Crenshaw, K.W., Mays, V.M., Tomlinson, B. (2013). Intersectionality: mapping the movements of a theory. *Du Bois Review*, 10(2), 303–312.
- Castles, S. (2001). Migration: Sociological aspects. *International Encyclopedia of the Social and Behavioral Sciences*, 9824-9828.
- Centers for Disease Control and Preventions (2014). *What are determinants of health and how are they related to social determinants of health*. Retrieved from <http://www.cdc.gov/nchhstp/socialdeterminants/faq.html#b>
- Chadwick, K.A., Collins, P.A. (2015). Examining the relationship between social support availability, urban center size, and self-perceived mental health of recent immigrants to Canada: A mixed-methods analysis. *Social Science & Medicine*, 128, 220-230.
- Chau, S., & Lai, D.W.L. (2011). The size of an ethnic-cultural community as a social determinant of health for Chinese seniors. *Journal of Immigrant Minority Health*, 13, 1090-1098.
- Chen, A.W. (2010). Immigrant access to mental health services: Conceptual and research issues. *Canadian Issues*, July, 51-54.
- Chen, A.W., & Kazanjian, A. (2005). Rate of mental health service utilization by Chinese immigrants in British Columbia. *Canadian Journal of Public Health*, 96(1), 49-51.
- Chen, A.W., & Kazanjian, A., Wong, H., Goldner, E.M. (2009). Why do Chinese not consult mental health services: Health status, language or culture? *Transcultural Psychiatry*, 46(4), 623-641.
- Chen, A.W., & Kazanjian, A., Wong, H., Goldner, E.M. (2010). Mental health service use by Chinese immigrants with severe and persistent mental illness. *Canadian Journal of Psychiatry*, 55(1), 35-42.

- Chen, J., Gee, G.C., Spencer, M.S., Danziger, S.H., & Takeuchi, D.T. (2009). Perceived social standing among Asian immigrants in the U.S.: Do reasons for immigration matter? *Social Science Research*, 38, 858-869.
- Chen, J., Hou, F., Sanmartin, C., Houle, C., Tremblay, S., & Berthelot, J.M. (2002). Unmet health care needs. *Health Reports*, 13(2), 23-34.
- Chen, J., Ng, E., & Wilkins, R. (1996). The health of Canada's immigrants in 1994-1995. *Health Reports*, 7(4), 33-45.
- Cho, S., Crenshaw, K.W., & McCall, L. (2013). Toward a field of intersectionality studies: theory, applications, and praxis. *Signs*, 38(4), 785-810.
- Chotikapanich, D., Creedy, J., & Hopkins, S. (2003). Income and health concentration in Australia. *Economic Record*, 79(246), 297-305.
- Chung, I. (2010). Changes in the sociocultural reality of Chinese immigrants: Challenges and opportunities in help-seeking behavior. *International Journal of Social Psychiatry*, 56(4), 436-447.
- Citizenship and Immigration Canada. (2011). Canada facts and figures: Immigration overview, permanent and temporary residents. Retrieved from <http://www.cic.gc.ca/english/pdf/research-stats/facts2010.pdf>
- Citizenship and Immigration Canada. (2013). Canada Facts and Figures: Immigration Overview Permanent Residents. Retrieved from <http://www.cic.gc.ca/english/pdf/2013-Facts-Permanent.pdf>
- Citizenship and Immigration Canada. (2014). Annual Report to Parliament on Immigration 2014. Retrieved from <http://www.cic.gc.ca/english/pdf/pub/annual-report-2014.pdf>
- Clark, W.A.V., & Maas, R. (2015). Interpreting migration through the prism of reasons for moves. *Population, Space and Place*, 21(1), 54-67.

- Collins, P.H. (1990). *Black feminist thought: knowledge, consciousness, and the politics of empowerment*. New York: Routledge.
- Collins, P.H. (2000). *Black feminist thought: knowledge, consciousness, and the politics of empowerment*. 2<sup>nd</sup> ed. New York: Routledge.
- Colton, T., Janzen, B., & Laverty, W. (2015). Family structure, social capital, and mental health disparities among Canadian mothers. *Public Health, 129*(6), 639-647.
- Concha, M., Sanchez, M., Rojas, P., Villar, M.E., & De La Rosa, M. (2016). Differences in acculturation and trajectories of anxiety and alcohol consumption among Latina mothers and daughters in South Florida. *Journal of Immigrant and Minority Health, 18*(4), 886-895.
- Costigan, C.L., & Koryzma, C.M. (2011). Acculturation and adjustment among immigrant Chinese parents: Mediating role of parenting efficacy. *Journal of Counseling Psychology, 58*(2), 183-196.
- Craparo, R.M. (2007). Significance level. In N.J. Salkind (Ed.), *Encyclopedia of measurement and statistics: Vol. 2* (pp. 889-891). London: SAGE Publications, Inc..
- Crenshaw, K (1989). Demarginalizing the intersection of race and sex: A Black feminist critique of antidiscrimination doctrine, feminist theory and antiracist politics, *University of Chicago Legal Forum, 140*, 139–167.
- Crenshaw, K (1991). Mapping the margins: intersectionality, identity, and violence against women of color. *Stanford Law Review, 43*(6), 1241–1299.
- Crenshaw, K.W. (2010). Close encounters of three kind: on teaching dominance feminism and intersectionality. *Tulsa Law Review, 46*(1), 151-189.
- Crooks, V.A., Hynie, M., Killian, K., Giesbrecht, M., & Castleden, H. (2011). Female newcomers' adjustment to life in Toronto, Canada: Sources of mental stress and their implications for delivering primary mental health care. *GeoJournal, 76*(2), 139-149.

- Datta, A., & Frewen, J. (2012). Identifying and tackling negative social determinants contributing to mental health problems amongst immigrant Bangladesh women in London. *European Psychiatry, 27*, 1-1.
- De Maio, F.G., & Kemp, E. (2010). The deterioration of health status among immigrants to Canada. *Global Public Health, 5*(5), 462-478.
- Dean, J.A., Wilson, K. (2010). “My health has improved because I always have everything I need here...”: A qualitative exploration of health improvement and decline among immigrants. *Social Science & Medicine, 70*(8), 1219-1228.
- Denton, M., Prus, S., & Walters, V. (2004). Gender differences in health: a Canadian study of psychological, structural and behavioral determinants of health. *Social Science & Medicine, 58*(12), 2585-2600.
- Denton, M., & Walters, V. (1999). Gender differences in structural and behavioral determinants of health: an analysis of the social production of health. *Social Science & Medicine, 48*(9), 1221-1235.
- Deri, C. (2005). Social networks and health service utilization. *Journal of Health Economics, 24*(6), 1076-1107.
- Dein, S. (2003). Against belief: the usefulness of explanatory model research in medical anthropology. *Social Theory and Health, 1*, 149-162.
- Dhamoon, R., & Hankivsky, O. (2011). Why the theory and practice of intersectionality matter to health research and policy. In H. Olena (Ed.), *Health inequities in Canada: Intersectional frameworks and practices* (pp. 16-52). Vancouver: UBC Press.
- Dietz, J., Esses, V.M., Joshi, C., & Bennett-AbuAyyash, C. (2009). *The evaluation of immigrants' credentials: The roles of accreditation, immigrant race, and evaluator biases*. Ontario: Canadian Labour Market and Skills Researcher Nwtwork.

- Dooley, D. (2003). Unemployment, underemployment, and mental health: Conceptualizing employment status as a continuum. *American Journal of Community Psychology, 32*(1), 9-20.
- Drake, R.E., Bond, G.R., Thornicroft, G., Kanpp, M.K., & Goldman, H.H. (2012). Mental health disability: An international perspective. *Journal of Disability Policy Studies, 23*(2), 110-120.
- Dunlop, S., Coyte, P. C., & McIsaac, W. (2000). Socio-economic status and the utilization of physicians' services: results from the Canadian Population Health Survey. *Social Science & Medicine, 51*(1), 123-133.
- Dunn, J. (2006). Speaking theoretically about population health. *Journal of Epidemiology and Community Health, 60*, 572-573.
- Dunn, J. R. (2000). Housing and health inequalities: review and prospects for research. *Housing Studies, 15*(3), 341-366.
- Dunn, J.R., & Dyck, I. (2000). Social determinants of health in Canada's immigrant population: results from the national population health survey. *Social Science and Medicine, 51*(11), 1573-1593.
- Dunn, J. R., & Hayes, M. V. (2000). Social inequality, population health and housing: a study of two Vancouver neighborhoods. *Social Science and Medicine, 51*(4), 564-587.
- Durbin, A., Moineddin, R., Lin, E., Steele, L.S., & Glazier, R.H. (2015). Mental health service use by recent immigrants from different world regions and by non-immigrants in Ontario, Canada: A cross-sectional study. *BMC Health Services Research, 15*, 1-15.
- Eaker, E. D., Sullivan, L. M., Kelly-Hayes, M., D'Agostino, R. B., Sr., & Benjamin, E. J. (2007). Marital status, marital strain, and risk of coronary heart disease or total mortality: The Framingham Offspring Study. *Psychosomatic Medicine, 69*(6), 509-513.

- Esses, V.M., Dietz, J., Bennett-Abuayyash, C., & Lapshina, N. (2014). How discrimination against ethnic and religious minorities contributes to the underutilization of immigrants' skills. *Policy Insights from the Behavioral and Brain Sciences*, 1(1), 55-62.
- Esses, V.M., Dietz, J., Bennett-Abuayyash, & Joshi, C. (2007). Prejudice in the workplace: The role of bias against visible minorities in the devaluation of immigrants' foreign-acquired qualifications and credentials. *Canadian Issues*, April, 114-118.
- Evans, G. W., Wells, N. M., Chan, H. E., & Saltzman, H. (2000). Housing quality and mental health. *Journal of Clinical and Consulting Psychology*, 68(3), 526-530.
- Fenta, H., Hyman, I., & Noh, S. (2006). Mental health service utilization by Ethiopian immigrants and refugees in Toronto. *The Journal of Nervous and Mental Disease*, 194(12), 925-934.
- Fisher, C.B., Wallace, S.A., & Fenton, R.E. (2000). Discrimination distress during adolescence. *Journal of Youth and Adolescence*, 29(6), 679-695.
- Fleury, D. (2007). *A study of poverty and working poverty among recent immigrants to Canada*. Canada: Human Resources and Social Development Canada.
- Frank, J.W., & Mustard, J.F. (1994). The determinants of health from a historical perspective. *Daedalus*, 123(4), 1-19.
- Franks, F., Faux, S.A. (1990). Depression, stress, mastery, and social resources in four ethnocultural women's groups. *Research in nursing and health*, 13, 363-372.
- Frohlich, K.L., Ross, N., & Richmond, C. (2006). Health disparities in Canada today: Some evidence and a theoretical framework. *Health Policy*, 79(2), 132-143.
- Fuller-Thomson, E., Noack, A.M., & George, U. (2011). Health declines among recent immigrant to Canada: Findings from a nationally-representative longitudinal survey. *Canadian Journal of Public Health*, 102(4), 271-280.

- Fung, K., & Wong, Y.L.R. (2007). Factors influencing attitudes towards seeking professional help among east and southeast Asian immigrant and refugee women. *International Journal of Social Psychiatry*, 53(3), 216-231.
- Galabuzi, G. E. (2009). Social exclusion. In D. Raphael (Ed.), *Social determinants of health: Canadian perspectives* (2<sup>nd</sup> ed., pp. 252-268). Toronto: Canadian Scholars' Press.
- Gan, G.M. (2008). Seeking self-worth, fighting boredom: Why women choose to work in Catbalogan, Samar, Philippines. *Journal of Social Issues in Southeast Asia*, 23(2), 186-215.
- George, E. S., Jorm, L., Kolt, G. S., Bambrick, H., & Lujic, S. (2012). Physical activity and psychological distress in older men: findings from the New South Wales 45 and up study. *Journal of Aging and Physical Activity*, 20(3), 300-316.
- George, U., Thomson, M.S., Chaze, F., & Guruge, S. (2015). Immigrant mental health, a public health issue: looking back and moving forward. *International Journal of Environmental Research and Public Health*, 12(10), 13624-13648.
- Giacco, D., Matanov, A., Priebe, S. (2014). Providing mental healthcare to immigrants: Current challenges and new strategies. *Current Opinion in Psychiatry*, 27(4), 282-288.
- Gil, A.G., Vega, W.A., & Dimas, J.M. (1994). Acculturative stress and personal adjustment among Hispanic adolescent boys. *Journal of Community Psychology*, 22(1), 43-54.
- Gilmore, J. (2009). *The 2008 Canadian immigrant labor market: analysis of quality of employment* (Catalogue no 71-606-X, No. 5). Canada: Statistics Canada. Retrieved from <http://www.statcan.gc.ca/pub/71-606-x/71-606-x2009001-eng.pdf>
- Given, L.M. (2008). Quantitative research methods. In N.J. Salkind (Ed.), *The encyclopedia of educational psychology* (pp. 827-831). Thousand Oaks, CA: Sage Publications.
- Gravel, R., & Beland, Y. (2005). The Canadian community health survey: Mental health and well-being. *Canadian Journal of Psychiatry*, 50(10), 573-579.

- George, U., & Chaze, F. (2012). Credential assessment of internationally trained professionals: How effective is the process for the purpose of securing employment? *Journal of Immigrant and Refugee Studies*, 10(1), 124-130.
- George, U., Chaze, F., Fuller-Thomson, E., & Brennenstuhl, S. (2012). Underemployment and life satisfaction: A study of internationally trained engineers in Canada. *Journal of Immigrant and Refugee Studies*, 10(4), 407-425.
- George, U., Thomson, M.S., Chaze, F., & Guruge, S. (2015). Immigrant mental health, a public issue: Looking back and moving forward. *International Journal of environmental research and public health*, 12(10), 13624-13648.
- Goldberg, D.P. (1972). *The detection of psychiatric illness by questionnaire*. London: Oxford University Press.
- Gonzalez, J.M., Alegria, M., Prihoda, T.J., Copeland, L.A., & Zeber, J.E. (2011). How the relationship of attitudes toward mental health treatment and service use differs by age, gender, ethnicity/race and education. *Social Psychiatry and Psychiatric Epidemiology*, 46(1), 45-57.
- Gordon, D., Shaw, M., Dorling, D., & Davey, S.G. (1999). *Inequalities in health: The evidence presented to the independent inquiries into inequalities in health*. Bristol: The Policy Press.
- Government of Canada. (2012). *Health Canada Act*. Retrieved from <http://hc-sc.gc.ca/hcs-sss/medi-assur/cha-lcs/index-eng.php>
- Government of Canada (2014). Employment Equity Act (S.C. 1995, c. 44). Retrieved from <http://laws.justice.gc.ca/eng/acts/e-5.401/>
- Government of Canada. (2015). Immigration and Refugee Protection Act (S.C. 2001, c. 27). Retrieved from <http://laws.justice.gc.ca/eng/acts/i-2.5/>
- Government of Canada. (2016). Key highlights: 2016 immigration level plans. Retrieved from <http://news.gc.ca/web/article-en.do?nid=1038709>

- Graham, H. (2004a). Social determinants and their unequal distribution: Clarifying policy understandings. *Milbank Quarterly*, 82(1), 101-124.
- Graham, H. (2004b). Tackling health inequalities in health in England: Remediating health disadvantages, narrowing health gaps, or reducing health gradients? *Journal of Social Policy*, 33(1), 115-131.
- Graves, T. (1967). Psychological acculturation in a tri-ethnic community. *South-Western Journal of Anthropology*, 23(4), 337-350.
- Grella, C.E., Lovinger, K. (2012). Gender differences in physical and mental health outcomes among an aging cohort of individuals with a history of heroin dependence. *Addictive Behaviors*, 37(3), 306-312.
- Griffith, D.M., Ellis, K.R., & Allen, J.O. (2013). An intersectional approach to social determinants of stress for African American men: men's and women's perspectives. *American Journal of Men's Health*, 7(4), 19S-30S.
- Gupta, A., Szymanski, D.M., & Leong, F.T.L. (2011). The "Model Minority Myth": Internalized Racialism of Positive Stereotypes as correlates of psychological distress, and attitudes toward help-seeking. *Asian American Journal of Psychology*, 2(2), 101-114.
- Guo, S. (2007). Tracing the roots of non-recognition of foreign credentials. *Canadian Issues*, Spring, 36-38.
- Guruge, S., Khanlou, N., & Gastaldo, D. (2009). Intimate male partner violence in the migration process: Intersections of gender, race and class. *Journal of Advanced Nursing*, 66(1), 103-113.
- Guruge, S., Thomson, M.S., George, U., Chaze, F. (2015). Social support, social conflict, and immigrant women's mental health in a Canadian context: A scoping review. *Journal of Psychiatric and Mental Health Nursing*, 22(9), 655-667.

- Gushulak, B. (2007). Healthier on arrival? Further insight into the “healthy immigrant effect.” *Canadian Medical Association Journal*, 176(10), 1439-1440.
- Gushulak, B.D., Pottie, K., Roberts, J.H., Torres, S., & DesMeules, M. (2011). Migration and health in Canada: health in the global village. *Canadian Medical Association Journal*, 183(12), E952-E958.
- Hallett, K. (2010). Intersectionality and serious mental illness – A case study and recommendations for practice. *Women & Therapy*, 38(1-2), 156-174.
- Halli, S.S., & Anchan, J.P. (2005). Structural and behavioral determinants immigrant and non-immigrant health status: Results from the Canadian Community Health Survey. *Journal of International Migration and Integration*, 6(1), 93-122.
- Hankivsky, O., & Christoffersen, A. (2008). Intersectionality and the determinants of health: a Canadian perspective. *Clinical Public Health*, 18(3), 271-283.
- Hankivsky, O., Reid, C., Cormier, R., Varcoe, C., Clark, N., Benoit, C., & Brotman, S. (2010). Exploring the promises of intersectionality for advancing women’s health research. *International Journal for Equity in Health*, 9(1), 1-15.
- Hansson, E.K., Tuck, A., Lurie, S., & McKenzie, K. (2012). Rates of mental illness and suicidality in immigrant, refugee, ethnicultural and racialized groups in Canada: A review of the literature. *The Canadian Journal of Psychiatry*, 57(2), 111-121.
- Haque, A. (2010). Mental health concepts in Southeast Asia: Diagnostic considerations and treatment implications. *Psychology, Health, & Medicine*, 15(2), 127-134.
- Harnois, C.E. (2015). Jeopardy, consciousness, and multiple discrimination: intersecting inequalities in contemporary Western Europe. *Sociological Forum*, 30(4), 971-994.
- Harrell, S.P. (2000). A multidimensional conceptualization of racism related stress: Implications for the well-being of people of color. *American Journal of Orthopsychiatry*, 70(1), 42-57.

- Hassett, A.L., & Clauw, D.J. (2011). Does psychological stress cause chronic pain? *Psychosomatic Medicine*, 34(3), 579-594.
- Hatfield, M. (2013). *Vulnerability to persistent low income*. Retrieved from <http://www.horizons.gc.ca/eng/content/feature-article-vulnerability-persistent-low-income>
- Hayes, M.V., & Dunn, J.R. (1998). *Population health in Canada: A systematic review*. Ottawa: Canadian Policy Research Network (CPRN).
- Health Canada. (1998). *Taking action on population health: A position paper for health promotion and program branch staff*. Ottawa: Health Canada.
- Health Canada. (2000). Migration health: Embracing a determinants of health approach. *Health Policy Research Bulletin*, 17, 1-52.
- Health Canada. (2010). Migration Health: Embracing a determinants of health approach. *Health Policy Research Bulletin*, 17, 1-52. Retrieved from [http://www.hc-sc.gc.ca/sr-sr/alt\\_formats/pdf/pubs/hpr-rpms/bull/2010-health-sante-migr-eng.pdf](http://www.hc-sc.gc.ca/sr-sr/alt_formats/pdf/pubs/hpr-rpms/bull/2010-health-sante-migr-eng.pdf)
- Hochhausen, L., Perry, D. F., & Le, H. N. (2008). From the inside out: Understanding limited mental health service use among Latina immigrants. *The Community Psychologist*, 41, 49–52.
- Hochhausen, L., Le, H.N., & Perry, D.F. (2011). Community-based mental health service utilization among low-income Latina immigrants. *Community Mental Health Journal*, 47, 14-23.
- Hooks, B. (1990). *Yearning: race, gender, and cultural politics*. Boston, MA: South End.
- Hosmer, D.W., Lemeshow, S., & Sturdivant, R.X. (2013). *Applied logistic regression* (3<sup>rd</sup> ed.). New Jersey: John Wiley & Sons, Inc.

- Howden-Chapman, P.L., Chandola, T., Stafford, M., & Marmot, M. (2011). The effect of housing on the mental health of older people: the impact of lifetime housing history in Whitehall II. *BMC Public Health, 50*(2), 426-442.
- Hu, T.W., Snowden, L.R., Jerrell, J.M., & Nguyen, T.D. (1991). Ethnic populations in public mental health: Services choice and level of use. *American Journal of Public Health, 81*(11), 1429-1434.
- Huang, S.L., & Spurgeon, A. (2006). The mental health of Chinese immigrants in Birmingham, UK. *Ethnicity and Health, 11*(4), 365-387.
- Hughes, M. E., & Waite, L. J. (2002). Health in household context: living arrangements and health in late middle age. *Journal of Health and Social Behavior, 43*(1), 1-21.
- Hwang, W.C. (2006). Acculturative family distancing: Theory, research, and clinical practice. *Psychotherapy: Theory, Research, Practice, Training, 43*(4), 397-409.
- Hwang, W.C., Myers, H.F., Abe-Kim, J., Ting, J.Y. (2008). A conceptual paradigm for understanding culture's impact on mental health: The cultural influences on mental health (CIMH) model. *Clinical Psychology Review, 28*(2), 211-227.
- Hyman, I. (2004). Setting the stage: Reviewing current knowledge on the health of Canadian immigrants, *Canadian Journal of Public Health, 95*(3), 1-4.
- International Organization for Migration. (2013). World migration report 2013: Migrant well-being and development. Retrieved from [https://publications.iom.int/system/files/pdf/wmr2013\\_en.pdf](https://publications.iom.int/system/files/pdf/wmr2013_en.pdf)
- Islam, F. (2013). Examining the “Healthy Immigrant Effect” for Mental Health in Canada. *University of Toronto Medical Journal, 90*(4), 169-175.
- Islam, F., Khanlou, N., & Tamim, H. (2014). South Asian populations in Canada: Migration and mental health. *BMC Psychiatry, 14*(1), 1-13.

- Jafari, S., Baharlou, S., & Mathias, R. (2010). Knowledge of determinants of mental health among Iranian immigrants of BC, Canada: "A qualitative study." *Journal of Immigrant and Minority Health, 12*(1), 100–106.
- Janlert, U., Winefield, A.H., & Hammastrom, A. (2015). Length of unemployment and health-related outcomes: a life-course analysis. *European Journal of Public Health, 25*(4), 662-667.
- Joutsenniemi, K., Martelin, T., Martikainen, P., Pirkola, S., & Koskinen, S. (2006). Living arrangements and mental health in Finland. *Journal of Epidemiology and Community Health, 60*(6), 468-475.
- Keene, J., & Li, X. (2005). Age and gender differences in health service utilization. *Journal of Public Health, 27*(1), 74-79.
- Kessler, R.C. (2012). The costs of depression. *Psychiatric Clinics of North America, 35*(1), 1-14.
- Kessler, R.C., Andrew, G., Mroczek, D.U., Ustun, T.B., & Wittchen, H.U. (1998). The World Health Organization Composite International Diagnostic Interview Short Form (CIDI-SF). *International Journals of Methods in Psychiatric Research, 7*, 171-185.
- Khanlou, N. (2003). Mental health promotion education in multicultural settings. *Nurse Education Today, 23*(2), 96-103.
- Khanlou, N. (2008). Young and new to Canada: Promoting the mental wellbeing of immigrant and refugee female youth. *International Journal of Mental Health and Addiction, 6*(3), 514-516.
- Khanlou, N. (2010). Migrant mental health in Canada. *Canadian Issues, 2010*, 9-16.
- Kim, G., Jang, Y., Chiriboga, D. A., Ma, G. X., Schonfeld, L. (2010). Factors associated with mental health service use in Latino and Asian immigrants elders. *Aging and Mental Health, 14*(5), 535-542.

- King, D.K. (1988). Multiple jeopardy, multiple consciousness: the context of a black feminist ideology. *Signs*, 14(1), 42-72.
- King, A.Y.C., & Bond, M.H. (1985). The Confucian paradigm of man: A sociological view. In W.S. Tseng & D.Y.H. Wu (Eds.), *Chinese culture and mental health* (pp. 29-45). Orlando, FL: Academic Press.
- Kirmayer, L.J., Weinfeld, M., Burgos, G., Guillaume, G., & Lasry, J. (2007). Use of health care services for psychological distress by immigrants in an urban multicultural milieu. *The Canadian Journal of Psychiatry*, 52(5), 295-304.
- Kirmayer, L.J., Narasiah, L., Munoz, M., Rashid, M., Ryder, A.G., Guzder, J., Hassan, G., Rousseau, C., & Pottie, K. (2011). Common mental health problems in immigrants and refugees: General approach in primary care. *Canadian Medical Association Journal*, 183(12), E959-967.
- Kleinbaum, D.G., Kupper, L.L., Nizam, A., & Rosenberg, E.S. (2013). *Applied regression analysis and other multivariate methods* (5<sup>th</sup> ed.). Boston: Brooks Cole.
- Kleinman, A. (1977). Depression, somatization and the new cross-cultural psychiatry. *Social Science and Medicine*, 11(1), 3-19.
- Kleinman, A. (1982). Neurasthenia and depression: a study of somatization and culture in China. *Culture, Medicine, and Psychiatry*, 6(2), 117-190.
- Kleinman, A. (2004). Culture and depression. *The New England Journal of Medicine*, 351(10), 951-953.
- Kung, W.W. (2003). Chinese Americans' Help seeking for emotional distress. *Social Service Review*, 77(1), 110-134.
- Kobayashi, K.M., & Prus, S.G. (2011). Adopting an intersectionality perspective in the study of the healthy immigrant effect in mid- to later life. In O. Hankivsky (Ed.), *Health inequities in Canada: intersectional frameworks and practices* (pp. 180-197). Vancouver: UBC Press.

- Kobayashi, K.M., Prus, S., & Lin, Z. (2008). Ethnic differences in self-rated and functional health: does immigrant status matter? *Ethnicity & Health, 13*(2), 129-147.
- Koneru, V.K., Weisman de Mamani, A.G., Flynn, P.M., & Betancourt, H. (2007). Acculturation and mental health: Current findings and recommendations for future research. *Applied and Preventive Psychology, 12*(2), 76-96.
- Lai, D.W. (2000). Prevalence of depression among the elderly Chinese in Canada. *Canadian Journal of Public Health, 91*, 64-66.
- Lai, D. W. L. (2001). Use of senior center services of the elderly Chinese immigrants. *Journal of Gerontological Social Work, 35*(2), 59-79.
- Lai, D.W. (2004). Impact of culture on depressive symptoms of elderly Chinese immigrants. *Canadian Journal of Psychiatry, 49*, 820-827.
- Lai, D.W. (2004). Depression among elderly Chinese-Canadian immigrants from mainland China. *Chinese Medicine Journal, 117*, 677-683.
- Lai, D. W. L. (2004). Use of home care services by elderly Chinese immigrants. *Home Health Care Services Quarterly, 23*(3), 41-56.
- Lai, D. W. L. (2005). Prevalence and correlates of depressive symptoms in older Taiwanese immigrants in Canada. *Journal of Chinese Medicine Association, 68*(3), 118-125.
- Lai, D. W. L. (2008). Intention of use of long-term care facilities and home support services by Chinese-Canadian family caregivers. *Social Work in Health Care, 47*(3), 259-276.
- Lai, D.W.L., & Chau, S.B.Y. (2007). Predictors of health service barriers for older Chinese immigrants in Canada. *Health and Social Work, 32*(1), 57-65.
- Lai, D.W.L., & Surood, S. (2008). Predictors of depression aging South Asian Canadians. *Journal of Cross Cultural Gerontology, 23*, 57-75.

- Lai, D.W.L., & Surood, S. (2010). Types and factor structure of barriers to utilization of health services among aging south Asians in Calgary, Canada. *Canadian Journal on Aging, 29*(2), 249-258.
- Lalonde, M. (1974). *A new perspective on the health of Canadians: A working document*. Retrieved from <http://www.phac-aspc.gc.ca/ph-sp/pdf/perspect-eng.pdf>
- Lane, P., Tribe, R., & Hui, R. (2010). Intersectionality and the mental health of elderly Chinese women living in the UK. *International Journal of Migration, Health and Social Care, 6*(4), 34 – 41.
- Lay, C., & Nguyen, T. (1998). The role of acculturation-related and acculturation non-specific hassles: Vietnamese-Canadian students and psychological distress. *Canadian Journal of Behavioral Science, 30*(3), 172-181.
- Leclere, F. B., Jensen, L., & Biddlecom, A. E. (1994). Health care utilization, family context, and adaptation among immigrants to the United States. *Journal of Health and Social Behavior, 25*, 370–384.
- Lee, S. Y., Arozullah, A. M., & Cho, Y. L. (2004). Health literacy, social support, and health: a research agenda. *Social Science and Medicine, 58*, 1309-1321.
- Lee, H.B., Chiu, H.F.K., Kowk, W.Y., Leung, C.M., & Kwong, P.K. (1993). Chinese elderly and the GDS short form: a preliminary study. *Clinical Gerontologist, 14*(2), 37-42.
- Lee, S.J., Wong, N.W.A., & Alvarez, A.N. (2009). The model minority foreigner: Stereotypes of Asian Americans. In N. Tewari & A.N. Alvarez (Eds.), *Asian America psychology: Current perspectives* (pp. 69-84). New York: Routledge/Taylor & Francis Group.
- Lee, S.Y., Martins, S.S., Lee, H.B. (2015). Mental disorders and mental health service use across Asian American subethnic groups in the United States. *Community Mental Health Journal, 51*(2), 153-160.

- Leu, J., Walton, E., & Takeuchi, D. (2011). Contextualizing acculturation: Gender, family, and community reception influences on Asian immigrant mental health. *American Journal of Community Psychology, 48*(3), 168-180.
- Leung, J., Gartner, C., Hall, W., Lucke, J., & Dobson, A. (2012). A longitudinal study of the bi-directional relationship between tobacco smoking and psychological distress in a community sample of young Australian women. *Psychological Medicine, 42*(6), 1273-1282.
- Leong, F.T.L., & Lau, A.S.L. (2001). Barriers to providing effective mental health services to Asian Americans. *Mental Health Services Research, 3*(4), 201-214.
- Lin, F. (2010). Mental health service utilization by Chinese immigrants: Barriers and opportunities. *Canadian Issues, July*, 70-74.
- Lin, T. (1983). Psychiatry and Chinese culture. *Western Journal of Medicine, 139*(6), 862-867.
- Lin, K., & Cheung, F. (1999). Mental health issues for Asian Americans. *Psychiatric Services, 50*(6), 774-780.
- Lindstrom, M., & Rosvall, M. (2012). Marital status, social capital, economic stress, and mental health: A population-based study. *The Social Science Journal, 49*(3), 339-342.
- Lopez-Class, M., Castro, F.G., & Ramirez, A.G. (2011). Conceptions of acculturation: a review and statement of critical issues. *Social Sciences & Medicine, 72*(9), 1555-1562.
- Lou, Y., & Beaujot, R. (2005). What happens to the 'healthy immigrant effect': The mental health of immigrants to Canada. Ontario: University of Western Ontario, Population Studies Centre.
- Lu, X., Chauhan, A., & Campbell, C. (2015). Representations of mental health among middle-aged urban Chinese men. *Journal of Community and Applied Social Psychology, 25*(5), 384-399.

- Mahalingam, R., Balan, S., & Haritatos, J. (2008). Engendering immigrant psychology: An intersectionality perspective. *Sex Roles, 59*, 326-336.
- Mahmood, M. A., Bauze, A. E., Lokhorst, J. T., Bi, P., Saniotis, A. (2012). Influence of living arrangements on health services utilization in Australia. *Australian Health Review, 36*(1), 34-38.
- Marmot, M. G. (2004). *The status syndrome: How social standing affects our health and longevity*. New York: Henry Holt & Co Inc; 2004.
- Marmot, M., & Wilkinson, R. G. (2006). *Social determinants of health* (2<sup>nd</sup> ed.). New York: Oxford University Press.
- Martinson, M. (2012). Income inequality in health at all ages: A comparison of the United States and England. *American Journal of Public Health, 102*(11), 2049-2056.
- Masocco, M., Pompili, M., Vichi, M., Vanacore, N., Lester, D., & Tatarelli, R. (2008). Suicide and marital status in Italy. *Psychiatric Quarterly, 79*(4), 275-285.
- Maulik, P.K., Eaton, W.W., & Bradshaw, C.P. (2011). The effect of social networks and social support on mental health services use following a life event among the Baltimore epidemiologic catchment area cohort. *The Journal of Behavioral Health Services and Research, 38*(1), 29-50.
- McCall, W.V., Reboussin, B., & Rapp, S. (2001). Social support increases in the year after inpatient treatment of depression. *Journal of Psychiatric Research, 35*(2), 105-110.
- McDonald, J.T., & Kennedy, S. (2004). Insights into the 'healthy immigrant effect': health status and health service use of immigrants to Canada. *Social Science & Medicine, 59*(8), 1613-1627.
- McDonough, P., & Walters, V. Gender ad health: reassessing patterns and explanations. *Social Science & Medicine, 52*(4), 547-559.

- McGibbon, E. A. (2012). *Oppression: A social determinant of health*. Fernwood Publishing Co. Ltd..
- McKenzie, K. (2006). Racial discrimination and mental health. *Psychiatry*, 5(11), 383-387.
- McKenzie, K., Hansson, E., Tuck, A., & Lurie, S. (2010). Improving mental health services for immigrant, refugee, ethno-cultural and racialized groups. *Canadian Issues*, July, 65-69.
- McMullin, J. (2004). *Understanding social inequality: Intersections of class, age, gender, ethnicity and race in Canada*. Toronto: Oxford University Press.
- McPherson, C. M., & McGibbon, E. A. (2010). Addressing the determinants of child mental health: Intersectionality as a guide to primary health care renewal. *The Canadian Journal of Nursing Research*, 42(3), 50-64.
- Meadows, L., Thurston, W., & Melton, C. (2001). Immigrant women's health. *Social Science and Medicine*, 52(9), 1451-1458.
- Mehta, Janmohamed, & Corter, (2011). *An investigation of the career paths of internationally trained early childhood educators transitioning into early learning programs*. Ontario: Atkinson Centre for Society and Child Development.
- Mellor, D., Carne, L., Shen, Y.C., McCabe, M, & Wang, L. (2012). Stigma toward mental illness: a cross-cultural comparison of Taiwanese, Chinese immigrants to Australia and Anglo-Australians. *Journal of Cross-Cultural Psychology*, 44(3), 352-364.
- Mental Health Commission of Canada. (2009). *Toward recovery and wellbeing: A framework for a mental health strategy for Canada*.
- Mental Health Commission of Canada. (2013). *Making the case for investing in mental health in Canada*. Retrieved from [http://www.mentalhealthcommission.ca/sites/default/files/2016-06/Investing\\_in\\_Mental\\_Health\\_FINAL\\_Version\\_ENG.pdf](http://www.mentalhealthcommission.ca/sites/default/files/2016-06/Investing_in_Mental_Health_FINAL_Version_ENG.pdf)

- Mewes, R., Asbrock, F., & Laskawi, J. (2015). Perceived discrimination and impaired mental health and their descendents in Germany. *Comprehensive Psychiatry*, 62, 42-50.
- Mikkonen, J., & Raphael, D. (2010). *Social determinants of health: The Canadian facts*. Toronto: York University School of Health Policy and Management.
- Miller, M.J., Yang, M., Farrell, J.A., & Lin, L. (2011). Racial and cultural factors affecting the mental health of Asian Americans. *American Journal of Orthopsychiatry*, 81(4), 489-497.
- Milner, A., LaMontagne, A.D., Aitken, Z., Bentley, R., Kavanagh, A.M. (2014). Employment status and mental health among persons with and without a disability: Evidence from an Australian cohort study. *Journal of Epidemiology and Community Health*, 68(11), 1064-1071.
- Mojtabai, R., & Olfson, M. (2006). Treatment seeking for depression in Canada and the United States. *Psychiatric Services*, 57(5): 631-639.
- Muhammad, A., & Gagnon, A. (2009). Why should men and women marry and have children? Parenthood, marital status and self-perceived stress among Canadians. *Journal of Health Psychology*, 15(3), 315-325.
- Mullaly, B. (2002). *Challenging oppression: A critical social work approach*. Ontario: Oxford University Press.
- Nardi, P.M. (2005). *Doing survey research: A guide to quantitative methods* (2<sup>nd</sup> ed.). Boston: Pearson.
- Nelson, C.H., & Park, J. (2006). The nature and correlates of unmet health care needs in Ontario, Canada. *Social Science & Medicine*, 62(9), 2291-2300.
- Newbold, B. (2009). The short-term health of Canada's new immigrant arrivals: Evidence from LSIC. *Ethnicity and Health*, 14, 315-336.

- Newbold, B., & Danforth, J. (2003). Health status and Canada's immigrant population. *Social Science & Medicine*, 57(10), 1981-1995.
- Ng, E. (2011). The healthy immigrant effect and mortality rates. *Health Reports*, 22(4), 1-5.
- Ng, E., & Omariba, W. (2010). Is there a healthy immigrant effect in mental health? Evidences from population-based health surveys in Canada. *Canadian Issues*, 23-28.
- Ng, J.C., Lee, S.S., Pak, Y.K. (2007). Contesting the model minority and perpetual foreigner stereotypes: A critical review of literature on Asian Americans in education. *Review of Research in Education*, 31, 95-130.
- Nguyen, D., & Lee, R. (2012). Asian Immigrants' mental health service use: An application of the life course perspective. *Asian American Journal of Psychology*. 3(1), 53-63.
- Ngwakongnwi, E., Hemmelgarn, B. R., Musto, R., Quan, H., & King-Shier, K. (2012). Experience of French speaking immigrants and non-immigrants accessing health care services in a large Canadian city. *International Journal of Environmental Research and Public Health*, 9(10), 3755-3768.
- Nilssen, Y., Strand, T.E., Fjellbirkeland, L., Bartes, K., Brustugun, O.T. (2016). Lung cancer treatment is influenced by income, education, age and place of residence in a country with universal health coverage. *International Journal of Cancer*, 138(6), 1350-1360.
- Noh, S., & Avison, W. R. (1996). Asian immigrants and the stress process: a study of Koreans in Canada. *Journal of Health and Social Behavior*, 37(2), 192-206.
- Obasi, O.O., Njoku, C.U., & Ajaraogu, J.C. (2015). Factors influencing choice of medical treatment options among rural people in selected communities in Imo State, Nigeria. *British Journal of Applied Science and Technology*, 6(4), 417-423.
- O'Connor, D.W. (2006). Do older Australians truly have low rates of anxiety and depression? A critique of the 1997 National Survey of Mental Health and Wellbeing. *Australian and New Zealand Journal of Psychiatry*, 40(8), 623-631.

- O'Mahony, J.M., Donnelly, T.T., Este, D., & Bouchal, S.R. (2012). Using critical ethnography to explore issues among immigrants and refugee women seeking help for postpartum depression. *Issues in Mental Health Nursing*, 33(11), 735-742.
- Pan, S.W., & Carpiano, R.M. (2013). Immigrant density, sense of community belonging, and suicidal ideation among racial minority and white immigrants. *Journal of Immigrant and Minority Health*, 15(1), 34-42.
- Pearson, C., Janz, T., & Ali, J. (2013). *Health at a glance: mental and substance use disorders in Canada* (Catalogue no. 82-624-X). Canada: Statistics Canada.
- Pederson, A., & Raphael, D. (2006). Gender, race, and health inequalities. In D. Raphael, T. Bryant, & M. Rioux (Eds.), *Staying alive: critical perspectives on health, illness, and health care* (pp. 159-191). Toronto: Canadian Scholars' Press Inc.
- Phipps, S. (2003). *The impact of poverty on health: A scan of research literature*. Canadian Ottawa: Institute for Health Information.
- Picot, G., & Hou, F. (2014). *Immigration, low income and income inequality in Canada: What's new in the 2000s?* Canada: Statistics Canada. Retrieved from <http://www.statcan.gc.ca/pub/11f0019m/11f0019m2014364-eng.htm>
- Polit, D.F. (2009). *Statistics and data analysis for nursing research* (2<sup>nd</sup> ed.). Canada: Prentice Hall.
- Prus, S.G., & Gee, E. (2003). Gender differences in the influence of economic, lifestyle, and psychosocial factors on later-life health. *Canadian Journal of Public Health*, 94(4), 306-309.
- Public Health Agency of Canada (2013). What makes Canadians healthy or unhealthy? Retrieved from <http://www.phac-aspc.gc.ca/ph-sp/determinants/determinants-eng.php#socenviron>

- Puyat, J.H. (2013). Is the influence of social support on mental health the same for immigrants and non-immigrants? *Journal of Immigrant Minority Health, 15*(3), 598-605.
- Raphael, D. (2001). *Inequality is bad for our hearts: why low income and social exclusion are major causes of heart disease in Canada*. Toronto: North York Heart Health Network.
- Raphael, D. (2006). Social determinants of health: present status, unresolved questions, and future directions. *International Journal of Health Sciences, 36*(4), 751-677.
- Raphael, D. (2009). Social determinants of health: an overview of key issues and themes. In D. Raphael, *Social determinants of health: Canadian perspectives* (2<sup>nd</sup> ed., pp. 2-19). Toronto: Canadian Scholars' Press Inc..
- Raphael, D., & Bryant, T. (2002). The limitations of population health as a model for a new public health research. *Health Promotion International, 17*(2), 189-199.
- Raphael, D, Curry-Stevens, A., & Bryant, T. (2008). Barriers to addressing the social determinants of health: insight from the Canadian experience. *Health Policy, 88*(2), 222-235.
- Redfield, R., Linton, R., & Herskovits, M.J. (1936). Memorandum for the study of acculturation. *American Anthropologists, 38*(1), 149-152.
- Rogers, R. G. (1996). The effects of family composition, health, and social support linkages on mortality. *Journal of Health and Social Behavior, 37*(4), 326-338.
- Roh, Y.H., Chang, J.Y., Kim, M.U., & Nam, S.K. (2014). The effects of income and skill utilization on the underemployed's self-esteem, mental health, and life satisfaction. *Journal of Employment Counseling, 51*(3), 125-141.
- Romans, S., Cohen, M., & Forte, T. (2011). Rates of depression and anxiety in rural and urban Canada. *Social Psychiatry and Psychiatric Epidemiology, 46*(7), 567-575.

- Rosella, L.C., Fitzpatrick, T., Wodchis, W.P., Calzavara, A., Manaon, H., & Goel, V. (2014). High-cost health care users in Ontario, Canada: demographic, socio-economic, and health status characteristics. *BMC Health Services Research*, *14*(1), 1-13.
- Rosenfield, S. (2012). Triple jeopardy? Mental health at the intersection of gender, race, and class. *Social Science & Medicine*, *74*(11), 1791-1801.
- Rossiter, K.R., & Morrow, M. (2011). Intersectional frameworks in mental health: Moving from theory to practice. In H. Olena (Ed.), *Health inequities in Canada: Intersectional frameworks and practices* (pp. 312-330). Vancouver: UBC Press.
- Rotenberg, L., Silva-Costa, A., & Griep, R.H. (2014). Mental health and poor recovery in female nursing workers: A contribution to the study of gender inequities. *Pan American Journal of Public Health*, *35*(3), 179-185.
- Rousseau, C., Hassan, G., Moreau, N., & Thombs, B.D. (2011). Perceived discrimination and its association with psychological distress among newly arrived immigrants before and after September 11, 2001. *American Journal of Public Health*, *101*(5), 909-915.
- Rumbaut, R.G. (1994). The crucible within: Ethnic identity, self-esteem, and segmented assimilation among children of immigrants. *International Migration Review*, *28*(4), 748-794.
- Sadavoy, J., Meier, R., & Ong, A.Y.M. (2004). Barriers to access to mental health services for ethnic seniors: The Toronto study. *Canadian Journal of Psychiatry*, *49*(3), 192-199.
- Saeed, B., Xicang, Z., Yawson, A.E., Nguah, S.B., Nsowah-Nuamah, N.N. (2015). Impact of socioeconomic status and medical conditions on health and healthcare utilization among aging Ghanaians. *BMC Public Health*, *15*(1), 1-9.
- Safaei, J. (2011). Socioeconomic and demographic determinants of mental health across Canadian communities. *The Internet Journal of Mental Health*, *7.1*.

- Samuel, E. (2009). Acculturative stress: South Asian immigrant women's experiences in Canada's Atlantic provinces. *Journal of Immigrant and Refugee Studies*, 7(1), 16-34.
- Santoni, G., Angleman, S., Welmer, A., Mangialasche, F., Marengoni, A., & Fratiglioni, L. (2015). Age-related variation in health status after age 60. *PLOS One*, 10(3), 1-10.
- Sareen, J., Cox, B.J., Afifi, T.O., Yu, B.N., & Stein, M.B. (2005). Mental health service use in a nationally representative Canadian survey. *Canadian Journal of Psychiatry*, 50(12), 753-761.
- Scheppers, E., Dongen, E. V., Dekker, J., Geertzen, J., and Dekker, J. (2006). Potential barriers to the use of health services among ethnic minorities: a review. *Family Practice*, 23(3), 325-348.
- Schwartz, S., & Meyer, I. H. (2010). Mental health disparities research: the impact of within and between group analyses on tests of social stress hypotheses. *Social Science and Medicine*, 70(8), 1111-1118.
- Secker, J. (2009). Mental health, social exclusion and social inclusion. *Mental Health Review Journal*, 14(4), 4-11.
- Seng, J.S., Lopez, W.D., Sperlich, M., Hamama, L., & Reed Meldrum, C.D. (2012). Marginalized identities, discrimination burden, and mental health: empirical exploration of an interpersonal-level approach to modeling intersectionality. *Social Science & Medicine*, 75, 2437-2445.
- Sentell, T., Shumway, M., & Snowden, L. (2007). Access to mental health treatment by English language proficiency and race/ethnicity. *Journal of General Internal Medicine*, 22(S2), 289-293.
- Setia, M.S., Lynch, J., Abrahamowicz, M., Tousignant, P., & Quesnel-Vallee, A. (2011). Self-rated health in Canadian immigrants: Analysis of the longitudinal survey of immigrants to Canada. *Health and Place*, 17, 658-670.

- Shin, C.N., & Lach, H.W. (2014). Acculturation and health of Korean American adults. *Journal of Transcultural Nursing, 25*(3), 273-280.
- Shooshtari, S., Menec, V., & Tate, R. (2007). Comparing predictors of positive and negative self-rated health between younger (25-54) and older (55+) Canadian adults: A longitudinal study. *Research on Aging, 29*(6), 512-554.
- Siedlecki, S.L., Butler, R.S., & Burchill, C.N. (2015). Survey design research: A tool for answering nursing research questions. *Clinical nurse specialist, 29*(4), E1-E8.
- Silveira, E.R.T., & Ebrahim, S. (1998). Social determinants of psychiatric morbidity and well-being in immigrant elders and whites in East London. *International Journal of Geriatric Psychiatry, 13*(11), 801-812.
- Simich, L., Hamilton, H., & Baya, B.K. (2006). Mental distress, economic hardship and expectations of life in Canada among Sudanese newcomers. *Transcultural Psychiatry, 43*(3), 418-444.
- Simon, G.E. (2003). Social and economic burden of mood disorders. *Biological Psychiatry, 54*(3), 208-215.
- Sinacore, A.L., Titus, J., & Hofman, S. (2013). The role of relationship in the cultural transitioning of immigrant women. *Women & Therapy, 36*(3-4), 235-251.
- Sinacore-Guinn, A.L. (1998). Employed mothers: Job satisfaction and self-esteem. *Canadian Journal of Counseling Psychotherapy, 32*(3), 242-258.
- Singh, G.K., Rodriguez-Lainz, A., & Kogan, M.D. (2013). Immigrant health inequalities in the United States: Use of eight major national data systems. *The Scientific World Journal, 2013*, 1-21.
- Skarsater, I., Dencker, K., Berghom, I., Haggstrom, L., & Fridlund, B. (2003). Women's conceptions of coping with major depression in daily life: A qualitative, salutogenic approach. *Issues in Mental Health Nursing, 24*(4), 419-439.

- Skarsater, I., Dencker, K., Bergbom, I., Haggstrom, L., & Fridlund, B. (2003). A salutogenic perspective on how men cope with major depression in daily life, with the help of professional and lay support. *Issues in Mental Health Nursing, 24*(4), 419-439.
- Slade, B. (2008). Engineering barriers: An empirical investigation into the mechanics of downward mobility. *Socialist Studies, 4*(2), 21-40.
- Smetanin, P., Stiff, D., Briante, C., Adair, C.E., Ahmad, S., & Khan, M. (2011). The Life and Economic Impact of Major Mental Illnesses in Canada: 2011 to 2041. Retrieved from [http://www.mentalhealthcommission.ca/sites/default/files/MHCC\\_Report\\_Base\\_Case\\_FIN\\_AL\\_ENG\\_0\\_0.pdf](http://www.mentalhealthcommission.ca/sites/default/files/MHCC_Report_Base_Case_FIN_AL_ENG_0_0.pdf)
- Smith, K.L.W., Matheson, F.I., Moineddin, R., & Glazier, R.H. (2007). Gender, income and immigration in Canadian urban centres. *Canadian Journal of Public Health, 98*(2), 149-153.
- Smolak, A., Gearing, R.E., Alonzo, D., Baldwin, S., Harmon, S. (2013). Social support and religion: Mental health service use and treatment of schizophrenia. *Community Mental Health Journal, 49*(4), 444-450.
- So, L., & Quan, H. (2012). Coming to Canada: the difference in health trajectories between immigrants and native-born residents. *International Journal of Public Health, 57*(6), 893-904.
- Spencer, M.S., & Chen, J. (2004). Effect of discrimination on mental health service utilization among Chinese Americans. *American Journal of Public Health, 94*(5), 809-814.
- Srirangson, A., Thavorn, K., Moon, M., & Noh, S. (2013). Mental health problems in Thai immigrants in Toronto, Canada. *International Journal of Culture and Mental Health, 6*(2), 156-169.
- Stafford, M., Newbold, B.K., & Ross, N.A. (2010). Psychological distress among immigrants and visible minorities in Canada: A contextual analysis. *International Journal of Social Psychiatry, 57*(4), 428-441.

- Starkes, J.M., Poulin, C.C., Kisely, S.R. (2005). Unmet need for the treatment of depression in Atlantic Canada. *Canadian Journal of Psychiatry*, 50(10), 580-590.
- Statistics Canada. (2010). *Projections of the diversity of the Canadian population 2006-2031* (Catalogue No. 91-551-X). Retrieved from <http://www.statcan.gc.ca/pub/91-551-x/91-551-x2010001-eng.pdf>
- Statistics Canada. (2011a). *Canadian community health survey (CCHS): Annual component - 2010 questionnaire*. Retrieved from [http://www23.statcan.gc.ca/imdb-bmdi/instrument/3226\\_Q1\\_V7-eng.pdf](http://www23.statcan.gc.ca/imdb-bmdi/instrument/3226_Q1_V7-eng.pdf)
- Statistics Canada. (2011b). *Canadian community health survey (CCHS): Annual component - user guide 2010 and 2009-2010 microdata files*. Retrieved from [http://www23.statcan.gc.ca/imdb-bmdi/pub/document/3226\\_D7\\_T9\\_V8-eng.pdf](http://www23.statcan.gc.ca/imdb-bmdi/pub/document/3226_D7_T9_V8-eng.pdf)
- Statistics Canada. (2012). *Educational attainment and employment: Canada in an international context*. Retrieved from <http://www5.statcan.gc.ca/olc-cel/olc.action?ObjId=81-599-X2012008&ObjType=46&lang=en>
- Statistics Canada. (2013a). *Canadian community health survey: Public use microdata file*. Retrieved from <http://www.statcan.gc.ca/daily-quotidien/111107/dq111107a-eng.htm>
- Statistics Canada. (2013b). *Immigration and ethnocultural diversity in Canada: National Household Survey 2011* (Catalogue No. 99-010-X2011001). Retrieved from <http://www12.statcan.gc.ca/nhs-enm/2011/as-sa/99-010-x/99-010-x2011001-eng.pdf>
- Statistics Canada. (2015a). Classification of Visible Minority. Retrieved from: <http://www.statcan.gc.ca/eng/concepts/definitions/minority01a>
- Statistics Canada. (2015b). Immigrant. Retrieved from <http://www.statcan.gc.ca/eng/concepts/definitions/immigrant>

- Statistics Canada. (2016). *Canadian community health survey: Annual component (CCHS)*. Retrieved from <http://www23.statcan.gc.ca/imdb/p2SV.pl?Function=getSurvey&SDDS=3226>
- Steel, L.S., & Glazier, R.H., & Lin, E. (2006). Inequity in mental health care under Canadian universal health coverage. *Psychiatric Services, 57* (3), 317-324.
- Straiton, M., Reneflot, A., & Diaz, E. (2014). Immigrants' use of primary care services for mental health problems. *Health Services Research, 14*, 1-8.
- Straiton, M., Grant, J.F., Winefield, H.R., & Taylor, A. (2014). Mental health in immigrant men and women in Australia: the North West Adelaide Health Study. *BMC Public Health, 14*(1), 1-15.
- Stuart, H. (2006). Mental illness and employment discrimination. *Current Opinion in Psychiatry, 19*(5), 522-526.
- Stuart, G. W., Minas, I. H., Klimidis, S., & O'Connell, S. (1996). English language ability and mental health service utilization: a census. *Australian and New Zealand Journal of Psychiatry, 30*(2), 270-277.
- Sunderland, A., & Findlay, L.C. (2013). Perceived need for mental health care in Canada: Results from the 2012 Canadian Community Health Survey-Mental Health. *Health Reports, 24*(9), 3-9.
- Szumilas, M. (2010). Explaining odds ratios. *Journal of the Canadian Academy of Child and Adolescent Psychiatry, 19*(3), 227-229.
- Tamers, S. L., Beresford, S. A. A., Thompson, B., Zheng, Y., & Cheadle, A. D. (2011). Exploring the role of co-worker social support on health care utilization and sickness absence. *Journal of Occupational and Environmental Medicine, 53*(7), 751-757.

- Tarlov, A. (1996). Social determinants of health: The sociobiological translation. In D. Blane, E. Brunner, & R. Wilkinson (Eds.), *Health and social organization: Towards a health policy for the twenty-first century* (pp. 71-93). London: Routledge.
- Thomson, M.S., & Chaze, F., George, U., & Guruge, S. (2015). Improving immigrant populations' access to mental health services in Canada: A review of barriers and recommendations. *Journal of Immigrant and Minority Health, 17*(6), 1895-1905.
- Tieu, Y., & Konnert, C.A. (2014). Mental health help-seeking attitudes, utilization, and intentions among older Chinese immigrants in Canada. *Aging & Mental Health, 18*(2), 140-147.
- Tiwari, S.K., & Wang, J. (2006). The epidemiology of mental and substance use-related disorders among White, Chinese, and other Asian populations in Canada. *Canadian Journal of Psychiatry, 51*(14), 904-912.
- Tiwari, S.K., & Wang, J. (2008). Ethnic differences in mental health service use among white, Chinese, south Asian and south east Asian populations living in Canada. *Social Psychiatry and Psychiatric Epidemiology, 43*, 866-871.
- Townsend, P., Davidson, N., & Whitehead, M (Eds.). (1992). *Inequalities in health: The Black Report and the health divide*. New York: Penguin.
- Tsai, J., Floyd, R. L., O'Conner, M. J., & Velasquez, M. M. (2009). Alcohol use and serious psychological distress among women of child bearing age. *Addictive Behaviors, 34*, 146-153.
- Tsang, H.W.H., Angell, B., Corrigan, P.W., Lee, Y. T., Shi, K. (2007). A cross-cultural study of employers' concerns about hiring people with psychiatric disorder: Implications for recovery. *Social Psychiatry and Psychiatric Epidemiology, 42*(9), 723-733.
- United Nations Department of Economic and Social Affairs & Organization for Economic Cooperation and Development. (2013). *World migration in figures*. Retrieved from <https://www.oecd.org/els/mig/World-Migration-in-Figures.pdf>

- Urbanoski, K.A., Cairney, J., Bassani, D.G., & Rush, B.R. (2008). Perceived unmet need for mental health care for Canadians with co-occurring mental and substance use disorders. *Psychiatric Services, 59*(3), 283-289.
- Van Houdenhove, B. (2000). Psychological stress and chronic pain. *European Journal of Pain, 4*, 225-228.
- Varcoe, C., Hankivsky, O., & Morrow, M. (2007). Introduction: Beyond gender matters. In M. Morrow, O. Hankivsky, & C. Varcoe (Eds.), *Women's health in Canada: critical perspectives on theory and practice* (pp. 3-32). Toronto: University of Toronto Press.
- Veenstra, G. (2011). Mismatched racial identities, colourism, and health in Toronto and Vancouver. *Social Science and Medicine, 73*, 1152-1162.
- Veenstra, G. (2011). Race, gender, class, and sexual orientation: intersecting axes of inequality and self-rated health in Canada. *International Journal for Equity in Health, 10*(1), 1-11.
- Venters, H., & Gany, F. (2011). African immigrant health. *Journal of Immigrant and Minority Health, 13*(2), 333-344.
- Verkuyten, M. (1998). Perceived discrimination and self-esteem among ethnic minority adolescents. *The Journal of Social Psychology, 138*(4), 479-493.
- Villalba, J.A. (2009). Addressing immigrant and refugee issues in multicultural counselor education. *Journal of Professional Counseling, Practice, Theory, and Research, 37*(1), 1-13.
- Viruell-Fuentes, E.A. (2007). Beyond acculturation: immigration, discrimination, and health research among Mexicans in the United States. *Social Sciences & Medicine, 65*(7), 1524-1535.
- Viruell-Fuentes, E.A. (2011). "It's a lot of work": racialization processes, ethnic identity formations, and their health implications. *Du Bois Review: Social Science Research on Race, 8*(1), 37-52.

- Viruell-Fuentes, E.A., Miranda, P.Y., & Abdulrahim, S. (2012). More than culture: structural racism, intersectionality theory, and immigrant health. *Social Science & Medicine*, 75(12), 2099-2106.
- Walters, V., McDonough, P., & Strohschein, L. (2002). The influence of work, household structure, and social, personal and material resources on gender differences in health: an analysis of the 1994 Canadian National Population Health Survey. *Social Science & Medicine*, 54(5), 677-692.
- Walton, E., & Takeuchi, D.T. (2010). Family structure, family processes, and well-being among Asian Americans: Considering gender and nativity. *Journal of Family Issues*, 31(3), 301-332.
- Wareham, S., Fowler, K., & Pike, A. (2007). Determinants of depression severity and duration in Canadian adults: The moderating effects of gender and social support. *Journal of Applied Social Psychology*, 37(12), 2951-2979.
- Weber, L. (2006). Reconstructing the landscape of health disparities research: Promoting dialogue and collaboration between feminist intersectional and biomedical paradigms. In A.J. Schulz, & L. Mullings, *Gender, race, class, and health* (pp. 21-59). San Francisco: Jossey-Bass.
- Weiber, I., Tengland, P., Berglund, J., & Eklund, M. (2014). Social and healthcare professionals' experiences of giving support to families where the mother has an intellectual disability: Focus on children. *Journal of Policy and Practice in Intellectual Disabilities*, 11(4), 293-301.
- Whitley, D.M., Kelley, S.J., & Lamis, D.A. (2016). Depression, social support, and mental health: A longitudinal mediation analysis in African American custodial grandmothers. *The International Journal of Aging and Human Development*, 82(2-3), 166-187.

- Whitley, R., Kirmayer, L., & Groleau, D. (2006). Understanding immigrants' reluctance to use mental health services: a qualitative study from Montreal. *Canadian Journal of Psychiatry, 51*(4), 205-209.
- Wilkinson, R., & Marmot, M. (1998). *Social determinants of health: The solid facts*. Copenhagen: World Health Organization.
- Wilkinson, R., & Marmot, M. (2003). *Social determinants of health: The solid facts* (2<sup>nd</sup> ed.). Copenhagen: World Health Organization.
- Williams, C.L., & Berry, J.W. (1991). Primary prevention of acculturative stress among refugees: Application of psychological theory and practice. *American Psychologist, 46*(6), 632-641.
- Williams, D.R., Haile, R., Gonzalez, H.M., Neighbors, H., Baser, R., Jackson, J.S. (2007). The mental health of Black Caribbean immigrants: Results from the National Survey of American Life. *American Journal of Public Health, 97*(1), 52-59.
- Wolff, J. (2011). How should governments respond to the social determinants of health? *Preventive Medicine, 53*(4-5), 253-255.
- World Health Organization. (2014). Mental health: A state of well-being. Retrieved from [http://www.who.int/features/factfiles/mental\\_health/en/](http://www.who.int/features/factfiles/mental_health/en/)
- World Health Organization. (2016). Gender and women's mental health. Retrieved from [http://www.who.int/mental\\_health/prevention/genderwomen/en/](http://www.who.int/mental_health/prevention/genderwomen/en/)
- Wu, M.C., Kviz, F.J., & Miller, A.M. (2009). Identifying individual and contextual barriers to seeking mental health services among Korean American immigrant women. *Issues in Mental Health Nursing, 30*(2), 78-85.
- Wu, Z., Penning, M.J., & Schimmele, C.M. (2005). Immigrant status and unmet health care needs. *Canadian Journal of Public Health, 96*(5), 369-373.

- Wu, Z., & Schimmele, C.M. (2005). The healthy migrant effect on depression: Variation over time? *Canadian Studies in Population*, 32(2), 271-295.
- Xu, M.A., & McDonald, J.T. (2010). The mental health of immigrants and minorities in Canada: the social and economic effects. *Canadian Issues*, July, 29-31.
- Yan, M.C. (2010). How cultural awareness works. *Canadian Issues*, July, 75-78.
- Ye, M., & Chen, Y. (2014). The influence of domestic living arrangement and neighborhood identity on mental health among urban Chinese elders. *Aging & Mental Health*, 18(1), 40-50.
- Zhang, A.Y., Snowden, L.R., & Sue, S. (1998). Differences between Asian and white Americans' help seeking and utilization patterns in the Los Angeles area. *Journal of Community Psychology*, 26(4), 317-326.