Education, Income, and Mental Health Care: A Quantitative Analysis of Canadian Adults' Use of Mental Health Care

by

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Abstract

Mental health conditions are prevalent in Canada, but services are underutilized. It is important to understand what factors are linked to mental health care use, but the literature on this topic is inconclusive. What is the relationship between educational attainment, income, and the likelihood that Canadian adults will use mental health care services and treatments? To answer this research question, I apply a social stratification perspective and analyze two data subsets from the 2012 Canadian Community Health Survey – Mental Health Component (n = 25, 113). I constructed several logistic regression models that illustrate how educational attainment and household income relate to the use of a psychiatrist, a psychologist, a family doctor, and an antidepressant, respectively, while the effects of additional variables are accounted for. In the general population (n = 14,568), educational attainment has a weak and significant positive relationship with the consultation of a psychologist and the consultation of family doctor, while household income has a weak and significant negative relationship with the consultation of a family doctor and the use of an antidepressant. In the sub-population of Canadian adults who experienced either major depression or generalized anxiety disorder (n = 1,143), neither education nor household income demonstrated a significant relationship with any form of care. I provide general policy recommendations and outline pathways for future research.

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Chapter 1- Introduction

Project Overview

Mental health, generally defined as an individual's level of psychological well-being, is an important public health concern in Canadian society (Smetanin et al., 2011). One-fifth of the Canadian population experiences a mental health condition on an annual basis, and one-third of the population will experience a mental health condition at some point in their life (Government of Canada, 2020; Smetanin et al., 2011). Among these, major depression (MD) and generalized anxiety disorder (GAD) are two prevalent mental health conditions that have a profound impact on health and wellbeing (Moussavi et al., 2007; DeRubeis et al., 2008; Pearson et al., 2013; Watterson et al., 2017; Ansseau et al., 2008). Despite the breadth of mental health problems, less than 20% of Canadians access health services to manage their mental health related issue per year (Government of Canada, 2020).

This disconnect between the prevalence of mental health conditions in the Canadian population and the use of services to manage this health issue means that many Canadians' mental health care needs are not being met (Statistics Canada, 2019, 2021; Starkes et al., 2005). Approximately 17% of Canadians aged 15 years and above perceived a need for mental health care during 2011 and 2012, with 12% of these individuals indicating that their mental health care need was not met and 21% reporting that their need was partially met (Sunderland & Findlay, 2013). Approximately 75% of Canadians with a mood/anxiety disorder (bipolar disorder, generalized anxiety disorder, or depression) perceived a need for mental health care during 2011 and 2012 (Sunderland & Findlay, 2013). Therefore, it is necessary to investigate what factors are associated with the use of mental health care services and treatments within the Canadian population, particularly among the sub-population that experiences either MD or GAD.

Although many factors influence Canadian adults' use of mental health care services and treatments, it is especially important to understand the influence of educational attainment and income. Not only are these two socioeconomic resources linked to disparities in access to various forms of mental health care (Steele et al., 2007; Annequin et al., 2015; Starkes et al., 2005), but they are also unequally distributed within Canadian society.

In 2010, Canadians who fell within the 90th percentile of after-tax household income had an income that was 4.9 times higher than Canadians in the 10th percentile (Statistics Canada, 2022a). Regarding educational attainment, in 2011 37% of working age adults between the ages of 25 to 64 completed either less than high school or high school and 62% completed some form of post secondary education (either trades, college, or university) (Statistics Canada, 2022b). Based on the literature suggesting that educational attainment and income may influence use of mental health care, along with the information that these resources are unequally distributed within Canada, it is important to examine whether and how these resources impact use of mental health care in Canada.

The perspective of social stratification (SSP) is one of several ways to understand how resources, such as education and income, may influence use of mental health care services and treatments among Canadian adults. The fundamental proposition of this theory is that members of society are organized hierarchically with respect to their available socioeconomic resources (e.g., education, income), which in turn creates differences in an individual's exposure to advantage and disadvantage in their life (Ng et al., 2014; Kerbo, 2008). The primary outcome that I am concerned with is use of mental health care, and SSP suggests that the advantage or disadvantage that someone may experience in relation to this outcome will vary depending on their access to the unequally distributed resources of education and income because these

resources may provide differential access to care through their attendant benefits (e.g., knowledge of health care system, information literacy, upward social mobility, and disposable income) (Ng et al., 2014; Baker, 2014).

The objective of my thesis is to identify links between educational attainment, income, and the use of various mental health care services and treatments, such as the consultation of a psychiatrist, psychologist, or family doctor, and the use of antidepressants, among Canadian adults in general and those who have experienced MD or GAD. What is the relationship between educational attainment, income, and the likelihood that Canadian adults will use mental health care services and treatments? Addressing this question, I analyze the 2012 Canadian Community Health Survey- Mental Health Component (Statistics Canada, 2014a; N = 25,113) to isolate which individuals use mental health care within the Canadian healthcare system. I apply a series of logistic regression models that also account for other factors that may influence use of mental health care, such as marital status, social support, race/ethnicity and sex.

The importance of this research lies in the idea that a lack of effective treatments and services may not act as the only impediment to an individual's use of mental health care. Social factors may also influence the use of available treatments and services that promote proper management of mental health conditions. Therefore, it is important to identify social factors associated with the use of mental health care. If social inequality exists within treatment and service use, relevant stakeholders can develop evidence-based interventions to diminish this imbalance. My research seeks to inform policy makers responsible for developing strategic plans that address the health and wellbeing of Canadian adults who experience mental health conditions.

Central Findings

I find that educational attainment and household income are associated with specific types of mental health care within the general population but are unrelated to the use of mental health care within a sub-population of individuals who have experienced either MD or GAD. Among those within the general population, attaining a post-secondary degree translated into a marginally higher likelihood of consulting a psychologist or a family doctor in comparison to those who did not complete high school, whereas holding a higher household income decreased the likelihood that a Canadian adult would consult a family doctor or use an antidepressant medication.

Beyond educational attainment and income, my results suggest that several additional factors, such as social support, health coverage for prescription medications, sex, race/ethnicity, age, and province of residence contribute to the likelihood that an individual will use mental health care services and treatments within both the general population and the sub-population.

Core Contributions

The results of my research contribute to the extant body of literature that contends with the undetermined relationships between social factors, such as education and income, and mental health care use. My findings do not settle any of the debates present within the literature but do provide further information that helps to clarify how these factors may relate to one another and provides entry points that future researchers may use to further disentangle how education and income relate to the likelihood that individuals will use various forms of mental health care.

Moreover, I provide general policy recommendations based on my results. In this way, my findings offer both academic and practical contributions to Canada's pursuit of providing adequate health care to its population.

Chapter 2 – Background

Social Stratification Perspective

A social stratification perspective (SSP) guides my examination of the relationship between educational attainment, income, and mental health care use. SSP has long been an important framework within the social sciences and in the discipline of sociology (Maroto & Krahn, 2020). It offers a lens through which researchers can understand various types of social phenomena and the ways that scarce resources are manipulated and distributed within complex societies to produce variations in outcomes for individuals (Davis & Moore, 1945; Tumin, 1953; Wrong, 1959; Kerbo, 2008).

Social stratification is understood as a ranking system where individual and structural factors push people into particular social positions that offer different and unequal access to important resources (Ng et al., 2014; Kerbo, 2008). This disparity in access to resources leads to the creation of a social hierarchy where unequally ranked members of a society are exposed to varying degrees of advantage and disadvantage based upon their position in the stratification system. This asymmetrical exposure to advantage and disadvantage based on social position translates into differentials in the life-chances that individuals are likely to experience, which are defined as the degree of accessibility to opportunities that provide inhabitants of different social strata with the means to achieve advantageous living conditions (Maroto & Krahn, 2020).

An individual's ranking within a social stratification system is commonly defined in terms of their socioeconomic status (SES), which is a combination of their financial resources, educational attainment, and social status (Bollen et al., 2001). For the purposes of this study, I break down the concept of socioeconomic status to focus on education and income. I define social positions located within a higher social strata as those characterized by greater amounts of

educational attainment and income, whereas lower social strata contain social positions characterized by lower levels of educational attainment and income.

Education and income are unequally distributed within the Canadian population. There were stark gaps in these resources within Canada during the beginning of the second decade of the 21st century, and by the beginning of the third decade, such inequality is still pronounced (Statistics Canada, 2022a; Statistics Canada, 2022b). For example, in 2020 the gap in income reduced slightly, but the household income of Canadians in the 90th percentile was still 3.8 times greater than the household income of Canadians in the 10th percentile (Statistics Canada, 2022a). Considering education, although the percentage of Canadians who completed post-secondary education increased to 71% from 62% a decade earlier, and the percentage of Canadians who completed less than high school or high school decreased (from 37% to 28%) during this same timeframe, a large proportion of the Canadian population still has a low level of educational attainment (Statistics Canada, 2022b).

Moreover, disparities in income are also linked to differences in levels of education. Among men and women between the ages of 25 to 64 who are employed full time and have completed their education in Canada, holding a higher level of education, such as a bachelor's degree, corresponds to a greater level of earnings (Statistics Canada, 2017). For example, in 2015 the median earnings of men that attained at least a bachelor's degree was $82, 082 ($68, 342 for women with a bachelor's degree), whereas the earnings of their counterparts who only attained a high school diploma was $67, 965 ($43, 254 for women with a high school diploma) (Statistics Canada, 2017). Therefore, achieving a greater level of education in Canada is associated with acquiring a greater income, making these individuals more likely to reside in a higher social strata. This information suggests that inequality along the lines of education and income is the

norm within Canada and there is substantial diversity in the socioeconomic realities that Canadians experience within the nation's stratification system.

Why is stratification in education and income important to examine? These resources are connected to differences in individual outcomes. The general idea undergirding SSP as it relates to individual outcomes, is that those who are within a higher strata are more likely than those in a lower strata to experience positive outcomes in specific domains of their personal and social life, which is a pattern that appears when examining the consequences of stratification in education and income. For example, when individuals attain more education and acquire greater earnings, their life expectancy and health-adjusted life expectancy tends to increase (Bushnik et al., 2020), as does the quality of their mental health (Ng et al., 2014). Because education and income are linked to individual outcomes and are unequally distributed among the Canadian population, it is necessary to examine the diverse effects of such inequality on aspects of Canadians' lives that can be consequential to their standard of living. In this study, I use SSP to examine how occupying a specific social position – understood as a combination of income and educational attainment – relative to other social positions of a different rank, relates to another important outcome that can influence the quality of one's life: use of mental health care.

Compared to other frameworks, SSP is less commonly used to study mental health care use. Instead, researchers (Vasiliadis et al., 2005; Vasiliadis et al., 2009; Starkes et al., 2005; Roberge et al., 2011) generally use a derivation of Andersen's Behavioural Model (ABM) (Andersen, 1995) to frame their investigations of mental health care use. Studies frequently examine the predisposing (e.g., age, sex, education, ethnicity, and attitude towards health care), enabling (e.g., insurance, location of health service providers, and income), and need factors

(e.g., perceived need for care and evaluated need for care) that Andersen enumerated within his model (Andersen, 1995; Thoits, 2011).

Although my analyses include variables that fall within these three types of factors, I used SSP as opposed to ABM for two reasons. First, I assume that variation in education and income is more important to mental health care use than variation in the other variables mentioned, and consequently I prioritize education and income in my analyses, which is an assumption in line with SSP and not ABM. Second, my research question and cross-sectional dataset allow for descriptive, not explanatory, conclusions about mental health care use, and while ABM provides a largely explanatory framework, SSP offers a descriptive framework (Andersen, 1995; Ng et al., 2014), which makes the latter more suitable to my research objectives.

SES, Mental Health, and Mental Health Care

In line with the definition provided above, SES is commonly measured by indicators such as occupation, education, and income within the discipline of sociology (Baker, 2014). As an analytical construct, SES suffers from an inconsistency in the definitions and measurements researchers use to employ this construct within their research (Baker, 2014), which can damage this construct's ability to stoke theoretical and empirical advancement. Due to this issue, it is necessary to examine the elements that generally define SES as separate from this umbrella construct.

Educational attainment and income maintain important theoretical connections to mental health. For instance, an individual's income translates into an ability to access additional resources that are important for satisfying basic needs and supporting opportunities for upward socioeconomic mobility, which in turn influences an individual's mental health (Ng et al., 2014).

Education influences an individual's mental health through its tendency to confer advantages in the pursuit of economic and labor opportunities (Ng et al., 2014), and it may also promote knowledge that encourages healthy behavior that may stave off deficits in health (Baker, 2014).

In a stratified society, a person's social position will influence the resources they can access, which in turn influences their exposure to mental health risks (Ng et al., 2014). If this proposition is valid, then we should see connections between socioeconomic resources and the likelihood that individuals will experience mental health conditions. Empirical research demonstrates that such connections exist. SES is associated with common and serious mental health conditions (Lorant et al., 2003; Fryers et al., 2003; Packness et al., 2023) and the specific factors of educational attainment and income influence the likelihood of experiencing a mental health condition (Steele et al., 2007; Fryers et al., 2003; Packness et al., 2023; Watterson et al., 2017; Ansseau et al., 2008).

Many socioeconomic inequalities in the experience of common mental health conditions, such as depression and anxiety, exist (Fryers et al., 2003). Generally, those with a lower SES are more likely to exhibit depression and anxiety (Lorant et al., 2003; Fryers et al., 2003; Packness et al., 2023), and these conditions can materialize into considerable personal hardships for many adults (Fryers et al., 2003; Ansseau et al., 2008; Watterson et al., 2017). Addressing education and income specifically, individuals who have a low income and a low level of education are more likely to experience anxiety and depression (Ansseau et al., 2008; Packness et al., 2023; Watterson et al., 2017; Fryers et al., 2003; Steele et al., 2007). Financial hardship, when measured by whether an individual missed a meal, could not heat their home, sought assistance from a welfare or community organization, and/or sold an item due to a lack of accessible money, is also related to depression (Butterworth et al., 2009).

These findings suggest that individuals who are within a high socioeconomic strata have greater access to socioeconomic resources that can help them evade challenging mental health conditions, and consequently, they are less likely to experience conditions, such as anxiety and depression. In this instance, individuals who encounter more social advantages, due to their accumulation of socioeconomic resources, reap the benefit of improved mental health. But what about mental health care? Studies that have examined the relationship between SES, education, income, and an individual's use of mental health care have yielded inconclusive results. Many studies show relationships between these social factors and the use of service providers and antidepressant medications as forms of mental health care, but disagreements on these relationships exist within the literature (Annequin et al., 2015; Beck et al., 2005; Kivimäki et al., 2007; Butterworth et al., 2013; Steele et al., 2007; Roy-Byrne et al., 2009).

The inconclusiveness of the literature opens up space for further questioning. If adults with less income and education are more likely to experience mental health conditions, such as anxiety and depression, what role might these resources play in the process of obtaining mental health care within Canada? SSP suggests that within Canada's stratification system, the relationship between education, income, and mental health care use among adults will favour those with more socioeconomic resources. Those in the higher social strata will be more likely to use mental health care than those in the lower social strata, as they are better able to use their advantaged socioeconomic position and available resources to obtain this positive outcome. However, contrary to the relationship that SSP would suggest, the relationship between education, income, and mental health care use among Canadians may indicate that those in the lower social strata are more likely to use mental health care even though they have a disadvantaged socioeconomic position and less access to resources.

It is worth noting that the Canadian health care system is unique. The health care system in Canada is called Medicare and consists of thirteen insurance plans that correspond to each province and territory in the country (Government of Canada, n.d.-a). While the responsibility for the proper provision of health care services to most Canadian residents is accounted for by provincial and territorial governmental authorities, the federal government provides financial support and policy guidelines that, among other things, help sustain the Medicare system (Government of Canada, n.d.-a). The Canada Health Act, passed in 1984, stipulates five core criteria that the provincial and territorial authorities must accommodate in their provision of health services: comprehensiveness, accessibility, portability, public administration, and universality (Government of Canada, n.d.-b).

The Government of Canada (n.d.-b) states that the fundamental component of the nation's health care system is "universal coverage for medically necessary health care services provided on the basis of need, rather than the ability to pay" (Introduction section). However, such universal coverage does not apply to all health care services (e.g., psychotherapy and prescription medications), despite the Act's claim that the core aim "of Canadian health care policy is 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" (Canada Health Act, 1985, p. 5). Taking this information into account alongside the literature, it is necessary to examine mental health care treatment and service use among Canadian adults to ascertain whether disparities in use exist as a result of differences in income and educational attainment.

Mental Health Care Treatment and Service Use

Mental Health Care Service Providers. Education is usually positively associated with the use of services for mental health related issues, but the relationship is more varied for income. Studying Canadian adults who presented either an affective disorder or an anxiety disorder within the Canadian Community Health Survey 1.2, Steele et al. (2007) observed that those with higher levels of education consulted general practitioners, psychologists, psychiatrists, and social workers more often than their less educated counterparts. Steele et al. (2006) made a similar observation, as they identified that individuals who live in neighbourhoods characterized by higher levels of educational attainment, were more likely to receive mental health care from a psychiatrist than individuals who live in neighbourhoods characterized by lower levels of educational attainment. Annequin et al. (2015) provide supporting evidence for the findings identified by Steele et al. (2007), showing that individuals with greater levels of education were more likely to use mental health care services provided by a psychiatrist than those with lower levels of education in France. The strength of the association between education and care received from a psychiatrist appeared to increase when their analysis was restricted to only people who experienced depression, which suggests inequality in the distribution of mental health care services (Annequin et al., 2015).

McDonald et al. (2017) identified a similar relationship between education and the use of *any* mental health professional within Alberta, Ontario, and New Brunswick. These researchers found that individuals with a higher level of education were more likely to consult any mental health service provider; this relationship remained the same when the analysis was restricted to those who exhibited poorer self-rated mental health (McDonald et al., 2017). Additionally,

Vasiliadis et al. (2009) demonstrated that a greater level of educational attainment was positively related to the consultation of a psychologist.

For Atlantic Canada, Starkes et al. (2005) suggest that individuals with less education were less likely to use mental health services provided by a family doctor than individuals with greater levels of education. Approximately 80% of Canadians depend on a family doctor for mental health related services (Canadian Mental Health Association, 2018), which, considering the findings uncovered by Starkes et al. (2005) and Steele et al. (2007), becomes concerning, as those with lower levels of education may be at an increased risk of having their mental health related issues remain untreated.

Statistics Canada (2019) indicated that a common mental health care barrier is an inability to pay for services. Echoing this finding, McDonald et al. (2017) link income to the use of any mental health professional. However, McDonald et al. (2017) show that this relationship only occurs among certain income groups, and it changes when considering mental health status. Those with a household income between $30,000 and $49,999 are less likely to use services provided by any mental health professional than those who earn at least $80,000, and when the analysis is restricted to only those who exhibit poor self-rated mental health, those with a household income lower than $15,000 are more likely to use services from any mental health professional (McDonald et al., 2017). In contrast, Vasiliadis et al. (2005) and Steele et al. (2007) found no association between income and the use of mental health care services.

Bartram (2019), however, uses concentration indices to demonstrate, first, that mental health needs are more frequent among individuals with a lower household income, and second, that having a higher household income corresponds to increased use of services provided by a psychologist, whereas services provided by a family doctor are more equally distributed among

income levels. Vasiliadis et al. (2009) also identified income as an important factor linked to the use of a psychologist. This relationship may occur because a large proportion of Canadians must either use their own finances to pay for psychological care provided by a psychotherapist to treat their mental health condition, or access additional insurance coverage, which only provides financial support for a limited amount of psychological care per year (Canadian Mental Health Association, 2018; Bartram, 2019; Vasiliadis et al., 2009). This payment model differs from the public insurance model that covers services provided by a psychiatrist or family doctor (Bartram, 2019), which should buffer income's impact on access to care. But exactly how income relates to an individual's use of the various mental health service providers is unclear, and as a result, this relationship requires further examination in Canada.

The current body of literature suggests that there is variation in how education and income connect with the use of mental health care services offered by various health care providers. I contribute to this literature by testing three hypotheses that postulate the relationships between education, income, and the consultation of a psychiatrist, a psychologist, and a family doctor, favour those with more socioeconomic resources:

H1: *Education and income will be positively associated with the consultation of a psychiatrist*, net of all control variables. This means that Canadian adults who have a low level of educational attainment will be less likely to consult a psychiatrist than Canadian adults who have a high level of educational attainment (*H1a*) and low-income adults will be less likely to consult a psychiatrist than high-income adults (*H1b*).

H2: *Education and income will be positively associated with the consultation of a psychologist*, net of all control variables. This means that Canadian adults who have a low level of educational attainment will be less likely to consult a psychologist than Canadian adults who

have a high level of educational attainment *(H2a*) and low-income adults will be less likely to consult a psychologist than high-income adults (*H2b*).

H3: *Education and income will be positively associated with the consultation of a family doctor*, net of all control variables. This means that Canadian adults who have a low level of educational attainment will be less likely to consult a family doctor than Canadian adults who have a high level of educational attainment (*H3a*) and low-income adults will be less likely to consult a family doctor than high-income adults (*H3b*).

Antidepressant Medication. Antidepressant medication is a type of psychiatric medication that is a conventional form of treatment for depression (DeRubeis et al., 2008; Centre for Addiction and Mental Health, 2012) and anxiety disorders, such as GAD (Centre for Addiction and Mental Health, n.d.). The classification of "antidepressant" includes several types of medication, including selective serotonin reuptake inhibitors (SSRIs), serotonin and norepinephrine reuptake inhibitors (SNRIs), atypical antidepressants, monoamine oxidase inhibitors (MAOIs), and tricyclic antidepressants (TCAs). Within 2012, approximately 5.5% of Canadians used an antidepressant (Patten et al., 2014).

Like access to other forms of mental health care, factors related to SES are associated with the use of antidepressants, but the results are mixed. Individuals who face economic issues, think of themselves as being located within a low social class, or are unemployed are more likely to use antidepressants (Lewer et al., 2015). However, Butterworth et al. (2013) found that factors such as pension receipt and financial hardship were related to antidepressant use, whereas educational attainment was not.

Kivimäki et al. (2007) found that men with lower SES, when measured by education and occupation, were less likely to use antidepressants than individuals with higher SES. Marasine

and colleagues (2021) report a similar finding, as their results suggest that greater education corresponds to greater use of antidepressants. Conversely, alternative research suggests that individuals with less education and a lower income are more likely to use antidepressants, but only when considering members of the general population, as opposed to those who experienced depression (Annequin et al., 2015; Beck et al., 2005).

Therefore, uncertainty remains in our understanding of how education and income influence an individual's use of antidepressants. I contribute to this body of literature through testing a fourth hypothesis that postulates that the relationship between education, income, and use of an antidepressant medication favours those with more socioeconomic resources:

H4: *Education and income will be positively associated with the use of an antidepressant*, net of all control variables. Canadian adults who have a low level of educational attainment will be less likely to use an antidepressant than Canadian adults who have a high level of educational attainment *(H4a*) and low-income adults will be less likely to use an antidepressant than high-income adults (*H4b*).

Control Variables and Mental Health Care

Beyond educational attainment and income, several alternative factors may influence peoples' use of mental health care. These include social support, health coverage, alcohol use, race/ethnicity, age, sex, marital status, place of residence, working status, province of residence, and immigrant status.

While social support is unrelated to mental health care use in certain circumstances (Vasiliadis et al., 2009; Starkes et al., 2005), an individual's level of perceived social support is associated with their use of mental health care in others (Maulik et al., 2009; Thoits, 2011), indicating that this factor deserves further examination. Insurance coverage for prescription

medications has been linked to the use of psychotropic medications, including, but not limited to antidepressants, among Canadians who met criteria for having either an anxiety or affective disorder and consulted a physician in relation to their mental health (Dewa et al., 2005). The problematic consumption of alcohol may likewise influence an individual's use of antidepressants (Chavarria et al., 2021).

Individuals who are non-white are less likely to use mental health care services than people who are white (Roy-Byrne et al., 2009). Generally, older individuals are more likely than younger individuals to use antidepressants, but young-middle aged adults are more likely to use mental health service providers than older adults (Beck et al., 2005; Lewer et al., 2015; Roy-Byrne et al., 2009; McDonald et al., 2017). Women are more likely to use antidepressants and mental health care services than men, and there is greater use of mental health care services among individuals who are not married, but currently married or previously married individuals with depression are more likely to use antidepressants (Vasiliadis et al., 2005; Vasiliadis et al., 2009; McDonald et al., 2017; Steele et al., 2007; Beck et al., 2005; Lewer et al., 2015; Roy-Byrne et al., 2009; Marasine et al., 2021).

Place of residence (rural or urban) may influence an individual's use of mental health service providers; however, the findings are inconclusive (Roberge et al., 2011; Wang et al., 2005; Vasiliadis et al., 2005). Individuals who are employed are less likely to consult any mental health professional than unemployed individuals (McDonald et al., 2017). In comparison to Ontario, individuals who live in Alberta are more likely to use services provided by any mental health professional (McDonald et al., 2017). Immigrant status has also been linked to the use of service providers (Vasiliadis et al., 2009).

Although educational attainment and income are important factors that seem to influence an individual's use of mental health care, the literature suggests there are alternative factors that must also be considered. As such, I will further examine these alternative factors within my research.

Hypotheses

The body of literature reviewed above and SSP informed my research question: what is the relationship between educational attainment, income, and the likelihood that Canadian adults will use mental health care services and treatments? I ascertain whether differentials in educational attainment and income (i.e., higher or lower educational attainment and income) are associated with differentials in the likelihood that Canadian adults use mental health care services and treatments through testing the four sets of hypotheses mentioned above.

Each hypothesis posits a relationship between educational attainment, income, and a different form of mental health care. The relationships postulated within these hypotheses predict that individuals who have a low level of educational attainment or a low income will be less likely to use mental health care than their counterparts who have a high level of educational attainment or a high income, after accounting for the influence of several alternative factors. The suggested relationships between education, income, and use of mental health care support the SSP perspective and presuppose that having greater levels of socioeconomic resources provides an advantage to individuals in their pursuit of using mental health care, whereas having lower levels of socioeconomic resources disadvantages an individual regarding this same outcome. The advantages that greater amounts of these resources may promote include increased credibility, self-advocacy, knowledge of health care system, information and health literacy, upward social mobility, disposable income, and social ties (Ng et al., 2014; Baker, 2014; Starkes et al., 2005;

Steele et al., 2007; Roberge et al., 2011). The opposite of the hypothesized relationships counter SSP and presuppose that socioeconomic resources are not likely to provide an advantage in the pursuit of using mental health care.

I expect that my analyses will provide evidence that mental health care use in Canada favours those in higher socioeconomic positions within the nation's stratification system, which suggests that differentials in socioeconomic resources are likely implicated in disparities in the use of mental health care among Canadian adults. A test of these hypotheses will allow me to provide an evidence-based answer to my research question, place my study in conversation with the relevant literature, and connect my research with SSP.

Chapter 3 – Methods

Description of the Dataset

I used secondary analysis to examine a population-level dataset collected by Statistics Canada in 2012: The Canadian Community Health Survey- Mental Health Component (CCHS-MHC) (Statistics Canada, 2014a). I accessed this dataset through the Ontario Data Documentation Extraction Service and Infrastructure (ODESI) online data repository (ODESI, n.d.). The CCHS-MHC is a cross-sectional survey that Statistics Canada conducted from the 2nd of January 2012 until the 31st of December 2012. The survey sought to evaluate Canadians' mental health, Canadians' use of services related to mental health, and connections among numerous relevant variables and Canadians' mental health (Statistics Canada, 2014a).

The unit of analysis employed within the CCHS-MHC was the individual and data collection included individuals aged 15 or older who were living within one of the ten provinces of Canada (Statistics Canada, 2014a). The survey excluded individuals who were in the Canadian military, individuals who were institutionalized, and individuals who were living within a reserve or alternative Aboriginal community at the time of data collection (Statistics Canada, 2014a).

The survey used multistage cluster sampling for its research design. Several geographical locations were designated as the initial set of clusters. The researchers then sampled a selection of households from within these locations, and an individual member of each household was chosen at random to participate in the survey (Statistics Canada, 2014a). The final sample size of the survey consisted of 25,113 respondents, representing a high response rate at 86.3% (Statistics Canada, 2014a). In terms of data collection, the survey response was voluntary, and the method

used to obtain the data from the participants was computer assisted personal interviewing (Statistics Canada, 2014a).

Creation of Data Subsets

To examine how educational attainment and household income relate to mental health care use among Canadian adults, I constructed two subsets of the original CCHS-MHC dataset. In both subsets I excluded all respondents who indicated that they were students at the time of data collection. I removed students to better gauge how educational attainment influences mental health care use among adults who have completed their education because this variable may function differently among those who are in the process of completing their formal education. Additionally, I removed all individuals who were below the age of 20 and above the age of 64. I selected this age cut-off because I am strictly interested in mental health care use among working-age adults – the minimum age of 20, as opposed to 18, is due to the original coding of the variable within the CCHS-MHC that I use to measure an individual's age. I used the listwise deletion method to eliminate missing cases; any cases that provided missing information for any of the variables included within my analyses were dropped from the subsets.

The first subset includes the general population of Canadian adults who are non-students between the ages of 20-64 (n = 14,568). The second subset includes Canadian adults who are non-students between the ages of 20-64 and who experienced MD or GAD within the twelve months preceding their participation in the CCHS-MHC (n = 1,143). I used this second subset to examine whether education and income function differently in relation to mental health care use within a sub-population of individuals who were diagnosed with the common mental health disorders of MD and GAD.

Sample Selection Variables

I used four variables for sample selection: student status, age, major depression, and generalized anxiety disorder. Student status is defined as whether or not a respondent is "currently attending a school, college, cegep or university" (Statistics Canada, 2014a, p. 267). Ages are grouped within five-year categories ranging from 15-19 years to 80 years or more.

Within the CCHS-MHC, major depression is defined as:

> A period of 2 weeks or more with persistent depressed mood and loss of interest or pleasure in normal activities, accompanied by symptoms such as decreased energy, changes in sleep and appetite, impaired concentration, and feelings of guilt, hopelessness, or suicidal thoughts. (Statistics Canada, 2014b, p. 29).

The variable for major depression is operationalized as whether or not a respondent has experienced an episode of major depression within the 12 months preceding their participation in the CCHS-MHC. A respondent is considered to have experienced an episode of major depression if they: "[met] the criteria for lifetime major depressive episode; [had] a major depressive episode in the 12 months prior to the interview; and [had] clinically significant distress or impairment in social, occupational or other important areas of functioning" (Statistics Canada, 2014b, p. 33).

The CCHS-MHC defines generalized anxiety disorder as:

> A pattern of frequent, persistent worry and anxiety about several events or activities during at least a 6-month period. Symptoms... include: restlessness or feeling keyed up or on edge; being easily fatigued; difficulty concentrating; irritability; muscle tension, shakiness, headaches; sleep disturbance (difficulty falling asleep or staying asleep; or

> restless, unsatisfying sleep); excessive sweating, palpitations, shortness of breath, and various gastrointestinal symptoms. (Statistics Canada, 2014b, p. 47).

The variable for generalized anxiety disorder is operationalized as whether or not a respondent has experienced generalized anxiety disorder within the 12 months preceding their participation in the CCHS-MHC. A respondent is considered to have experienced generalized anxiety disorder if they: "[Met] the CCHS – Mental Health/WHO-CIDI criteria for lifetime Generalized Anxiety Disorder; [had] an episode of generalized anxiety lasting at least six months in the 12 months prior to the interview; and [had] clinically significant distress or impairment in social, occupational or other important areas of functioning" (Statistics Canada, 2014b, p. 50).

Variables and Measures

Independent and Dependent Variables

The following are the independent and dependent variables that I analyze. I employ four dependent variables to measure use of mental health care: consultation of a psychiatrist, consultation of a psychologist, consultation of a family doctor, and antidepressant use.

Consultation of a psychiatrist refers to whether or not a respondent consulted a psychiatrist for emotional, mental health, alcohol and/or drug problems during the 12 months preceding their participation in the CCHS-MHC. *Consultation of a psychologist* refers to whether or not a respondent consulted a psychologist for emotional, mental health, alcohol and/or drug problems during the 12 months. *Consultation of a family doctor* refers to whether or not a respondent consulted a family doctor for emotional, mental health, alcohol and/or drug problems during the 12 months. *Antidepressant use* refers to whether or not a respondent used an antidepressant medication – such as SSRIs, bupropion, TCAs, SNRIs, or another type of

antidepressant (Statistics Canada, 2014b) – in the two days preceding their participation in the CCHS-MHC.[1]

I recoded each dependent variable into a binary measure that ranges from 0 to 1. For each of the service provider dependent variables, a value of 0 means that the respondent did not consult a given service provider and a value of 1 means that they did. For the antidepressant use dependent variable, a value of 0 means that the respondent did not use an antidepressant medication and a value of 1 means that they did.

The independent variables are educational attainment and income. *Educational attainment* is measured as the highest level of education that a respondent has attained out of the following categories: completed less than high school, completed high school, completed some postsecondary, and completed postsecondary (Statistics Canada, 2014a). The educational attainment variable was treated as a set of dummy variables within the regression models, with the *completed less than high school* category serving as the omitted reference category. *Income* is measured by a respondent's total household income in dollars (Statistics Canada, 2014a). The variable for household income ranges from the minimum income category of no income or less than $20,000 to the maximum income category of $80,000 or more. The household income variable was treated as a set of dummy variables in the regression models, with the *no income or less than $20,000* category serving as the omitted reference category.

Originally, I included two additional variables to measure household income: household income in deciles and household income in quintiles. The income-decile measure was a derived variable that Statistics Canada created. This variable contained the "distribution of respondents in deciles based on… the adjusted ratio of their total household income to the low-income cut-off corresponding to their household and community size. It provides… a relative measure of their

household income to the household incomes of all other respondents" (Statistics Canada, 2014b, p. 72). The first decile contained the lowest household incomes, and the tenth decile contained the highest household incomes (Statistics Canada, 2014b). I used this income-decile variable to create an income-quintile variable. I collapsed the original ten categories in the decile variable into a new variable that contained five categories representing the respondents' household incomes in quintiles.

I did not include the income-decile or income-quintile variables in any of the final regression models that I developed (see the *analytical strategy* section below). This decision was based on these variables' lesser contribution to model fit, in comparison to the categorical income variable. Therefore, I only include the categorical income variable within my final models.

Control Variables

I include control variables for social support, health coverage, alcohol use, race/ethnicity, age, sex, marital status, place of residence, working status, province of residence, and immigrant status.

I measure *social support*, or the respondent's perceived level of social support, using two variables. The first variable is continuous and consists of a scale that ranges from a score of 10 (lowest level of perceived social support) to a score of 40 (highest level of perceived social support (Statistics Canada, 2014a; Statistics Canada, 2014b). I used this initial variable for social support to create a second one which measures social support in the form of quintiles, where the first quintile represents the lowest levels of perceived social support, and the fifth quintile represents the highest levels of perceived social support. Within the regression models, the first quintile of perceived social support is the omitted reference category. The social support

variables are made up of a truncated version of the Social Provisions Scale which measures five of the six elements of social relationships: guidance, reassurance of worth, reliable alliance, social integration, and attachment (Statistics Canada, 2014b; see Cutrona & Russel, 1987; see Weiss, 1973, 1974).

Healthcare coverage is defined as an adult's access to health care insurance for prescription medications and refers to whether a respondent has insurance that fully or partially covers their expenditures for prescription medications (n.b., both partial and full coverage are collapsed into a single variable within the CCHS-MHC dataset). I recoded health coverage into a binary variable where a value of 0 means that a respondent does have health insurance for prescription medications and a value of 1 means that a respondent does not.

Alcohol use is defined as an adult's consumption of alcohol and refers to how often the respondent consumed alcohol in the 12 months preceding their participation in the CCHS-MHC, ranging from less than once a month to each day (Statistics Canada, 2014a). I recoded alcohol consumption into an ordinal variable that includes the categories: does not drink (respondent has not drank alcohol in the past 12 months), light drinker (respondent drank alcohol two to three times per month or less), moderate drinker (respondent drank alcohol one to three times per week), heavy drinker (respondent drank alcohol at least four to six times per week or more). Within the regression models, the category *does not drink* is the omitted reference category.

Race/ethnicity is measured with the categories of white or non-white and is a derived variable within the CCHS-MHC dataset. The distillation of several racial/ethnic backgrounds into the aforementioned categories limits the ability to examine how specific racial/ethnic identities interact with mental health care use. Therefore, any interpretations that include this variable must be understood within the context of this limitation. I recoded race/ethnicity into a

binary measure where a value of 0 means that an individual is white and a value of 1 means that an individual is non-white.

I used two variables to measure age. The first is a recoded variable that measures age in grouped categories, ranging from a minimum of 20-24 years to a maximum of 60-64 years. Within the regression models, the category *20-24 years* is the omitted reference category. The second variable is a continuous measure of age that I developed. I created this variable by extracting values from each category of the first age variable and then used these values to construct a new variable, which ranges from a minimum of 22 to a maximum of 62.

Sex is measured with the categories of male or female, where a value of 0 means that a respondent is female and a value of 1 means that a respondent is male.

Marital status refers to a respondent's current relationship status, whether they are married, common-law, widowed, divorced/separated, or single. I recoded martial status into a binary variable where 0 means that a respondent is either married or common-law and 1 means that a respondent is not married or common-law.

Place of residence is measured with the categories of urban and rural and refers to whether the respondent lives within a census metropolitan area (CMA) or not. I recoded place of residence into a binary variable where a value of 0 means that a respondent lives within an urban area (CMA) and a value of 1 means that a respondent lives within a rural area (non-CMA).

Working status is measured using the categories employed (including self-employment) or unemployed. I recoded working status into a binary variable where a value of 0 means that a respondent is employed and a value of 1 means that a respondent is unemployed.

Province of residence is a nominal variable and includes the following categories: Newfoundland and Labrador, Prince Edward Island, Nova Scotia, New Brunswick, Quebec,

Ontario, Manitoba, Saskatchewan, Alberta, and British Columbia. I recoded province of residence into five categories: Atlantic provinces (including Newfoundland and Labrador, Prince Edward Island, Nova Scotia, and New Brunswick), Prairie provinces (including Manitoba, Saskatchewan, and Alberta), British Columbia, Ontario, and Quebec. Within the regression models, the *Prairie provinces* category is the omitted reference category in the general population and the *Atlantic provinces* is the omitted reference category in the sub-population.

Immigrant status refers to whether or not a respondent is an immigrant. I recoded immigrant status into a binary variable where a value of 0 means that a respondent is a non-immigrant and a value of 1 means that a respondent is an immigrant.

Analytical Strategy

I conducted my analyses using the statistical program R (Version 4.2.1; RStudio Team, 2022). Analyses were run first in the general population and then in the mental health condition (MHC) sub-population.

First, I developed unweighted frequency tables for each categorical variable, then I calculated survey means with 95% confidence intervals and standard errors to summarize and examine the weighted characteristics of every variable. I used bar graphs and histograms to visually represent the distributions for each variable.

Second, I used conditional means and bar graphs to examine the bivariate relationships between each of the categorical independent and control variables and the four dependent variables and a Chi Squared test to examine the statistical significance of each of these bivariate relationships. For the continuous measure of social support and the continuous measure of age, however, I used bivariate logistic regression to examine the strength and significance of the relationships between these continuous variables and each dichotomous dependent variable. I

was required to use this regression technique because conditional means and Chi Squared tests of significance are not applicable to analysis with continuous variables.

Finally, I used logistic regression to conduct multivariate analysis. I was required to use logistic regression because each of the dependent variables that measure mental health care are dichotomous. Therefore, I was not able to use alternative multivariate techniques such as ordinary least squares regression analysis.

Model Selection

I constructed several regression models to assess how the independent variables connected with each respective dependent variable, while the effects of all the control variables were taken into account. This analytical approach allowed me to examine the specific relationships between the independent variables and each dependent variable. Each model includes a different dependent variable. Model one includes the consultation of a psychiatrist; model two includes the consultation of a psychologist; model three includes the consultation of a family doctor; and model four includes the use of an antidepressant medication. Initially, I developed four models in the general population and then I constructed four more within the MHC sub-population. In total, eight final models were created.

I conducted a set of preliminary analyses to develop my final models. To start the model building process, I included only the independent variables to establish a base model. This allowed me to examine, first, the strength and significance of the relationships between the independent variables and the various forms of mental health care and, second, how this base model fit the data.

I originally had three measures for household income: one in categorical form, one in decile form, and one in quintile form. I created three unique versions of every base model to

ascertain which income measure performed the best; each version included a dependent variable, educational attainment, and a different measure of income.

The outcome of this process demonstrated that, regardless of which dependent variable was considered, the base model containing the categorical income measure produced the best model fit relative to the versions with other income measures. As a result, I dropped the income-decile and income-quintile measures from further analyses, and I used the base model that included educational attainment and the categorical measure of household income to build more sophisticated versions of each model that included the control variables. These base models were built within the general population and, to preserve consistency across the analyses, I used the same variable configuration to construct the base models within the MHC sub-population.

After the base models were constructed, I created six versions of each of the four final models in the general population and six versions of the four final models in the MHC sub-population. Each of these versions incorporated the control variables – with a different combination of the measures for social support and age: social support (continuous), social support (quintile), age (continuous), age (categorical) – in addition to the independent variables and a given dependent variable.

The first version of each final model included the independent variables and the control variables, with the categorical measure for age. The second version included the same, with the addition of the continuous measure for social support. The third version included all the previous variables, but instead incorporated the quintile measure for social support. The fourth version included the independent and control variables but used the continuous measure for age. The fifth version included the same variables as the fourth version, with the addition of the

continuous measure for social support. Finally, the sixth version included the same variables as the fifth version, but instead contained the quintile measure for social support.

After I created each version of the final models, I ran an Akaike Information Criterion (AIC) test for each version to compare model fit between them. The version with the lowest AIC value, and therefore the best model fit, was chosen as the final model for each respective dependent variable. Once I selected each final model I decided to add the health coverage variable to each regression model that contained a service provider dependent variable (see table 1 for the change in AIC values when the health coverage variable was included). I had not originally planned to do this, as the health coverage variable refers to insurance for *prescription medications* and not other forms of health care. Therefore, I thought it was only appropriate to include this variable within the model predicting the use of an antidepressant. The result of this last stage of the model building process showed that the health coverage variable improved model fit for many of the models within each population, and consequently changed the model version that I selected to be the final model for some dependent variables.

Table 1: AIC Values For Logistic Regression Models

General Population	**AIC Without HEACOV[1]**	**AIC With HEACOV**
Model 1	2825.11	**2809.76**
Model 2	3222.1	**3220.46**
Model 3[2]	6810.75	6777.65
	6811.08	**6774.81**
Model 4[3]	NA	**6277.31**
Sub-Population		
Model 1	**1170.72**	1174.73
Model 2	**1094.82**	1096.98
Model 3	1560.83	**1551.93**
Model 4[3]	NA	**1400.62**

[1]HEACOV is the variable for health insurance for prescription medications.
[2]Model 3 for the general population was the only model where the selection of the final model changed when HEACOV was included. The values in the third row represent the AIC values of the version of model 3 that would have been selected had HEACOV not been included and

the values in row four represent the AIC values of the model version that was inevitably selected due to the influence of HEACOV. Otherwise, the version of each model that was selected as the final model stayed the same.
[3]Model 4 already included HEACOV.
Bold = lowest AIC

To examine the goodness-of-fit for each model, I calculated McFadden's Pseudo-R^2, which offers a measure of the pseudo variance explained in a given dependent variable by the independent and control variables included within a given model (see tables 12 – 15) (Pampel, 2021).

Model Results Interpretation

I use average marginal effects (AMEs) to interpret my results (for odds ratios, see tables 14 and 15 in the appendix). I calculated the AMEs for the coefficients of each model. AMEs are one of three types of marginal effects, which tell us about the amount of change produced in the probability of a dichotomous dependent variable occurring, per change in an independent variable, while any other independent or control variables are held at certain values (Pampel, 2021). It is important to note that the construction and interpretation of an AME depends on whether the independent variable in question is continuous or categorical (Pampel, 2021).

AMEs for continuous independent variables use devices such as partial derivatives, linear slopes, and tangent lines to illustrate the change in the probability that a dependent variable will occur when a very small change happens in an independent variable (Pampel, 2021). AMEs for continuous variables are obtained using two steps: first, the marginal effects of the independent variables on a dependent variable for each case in a sample are calculated to create a distribution of marginal effects, and then the average of this distribution for each independent variable is extracted (Pampel, 2021).

For continuous variables, the use of partial derivatives to calculate AMEs works because continuous variables are amenable to infinite sub-division and therefore, small incremental

changes that produce modifications in the probabilities of a dependent variable occuring are interpretable (Healey et al., 2019; Pampel, 2021). However, the values within categorical variables are not amenable to infinite sub-division, and as a result, the partial derivative approach to calculating AMEs is not applicable (Healey et al., 2019; Pampel, 2021).

The approach to calculate AMEs for categorical variables is slightly different and includes three steps. First, the predicted probabilities for each case in a distribution are calculated when a categorical variable is set at its reference category (for binary variables this is the category that is valued at "0") and the other independent variables are set to their real values (Pampel, 2021). Second, the predicted probabilities for each case are calculated when the categorical variable is set to another category (for binary variables this category is valued at "1") and the remaining variables are set to their real values (Pampel, 2021). After these two steps are complete, the difference between the predicated probabilities of each category is calculated for each case and the mean of these differences represents the AME of a given categorical variable on a dependent variable (Pampel, 2021). The interpretation of the AME for a categorical variable illustrates the change that occurs in a dependent variable as a percentage point difference when the independent variable changes from one category to another (Pampel, 2021).

Model Assumption Testing

To guarantee that rigour was established within the logistic regression analyses, I ensured that I met all the assumptions that are attached to this method. The four general assumptions that must be met when conducting logistic regression analysis are (1) independence of errors, (2) linearity of logits, (3) no multicollinearity, and (4) no powerful outliers (Stoltzfus, 2011).

I ensured that each of my logistic regression models met these assumptions through the use of established diagnostic techniques, such as developing residual deviance plots, calculating

variance inflation factor (VIF) values, and calculating Cook's d values. For each model, the deviance residuals presented no coherent pattern, indicating that the independence of errors assumption was met. For each model, there were no identifiable issues with the linearity of logits, indicating that this assumption was satisfied. For each model, there were no VIF values greater than 10, indicating that there was no multicollinearity. For each model, there were no Cook's d values greater than one, which indicates that there were no influential outliers.

Logistic regression is sensitive to the number and type of independent variables included within a regression model (Stoltzfus, 2011). A common rule is to ensure that there are at least 10 observations in each category of the dependent variable per independent variable in the model; the final number of independent variables for a model is determined by the frequency of observations found in the category of the dependent variable that has the lowest number of cases. (Stoltzfus, 2011). If this criteria is not fulfilled, model overfit can occur (Stoltzfus, 2011).

Within the MHC sub-population, the consultation of a psychiatrist and the consultation of a psychologist dependent variables suffer from a low number of cases in the category that indicates an individual has consulted either service provider (240 cases for the former and 189 cases for the latter). Therefore, because of the number of independent variables I have included within my analyses, these two models may be overfit, and as a result, lack validity. Any interpretation of these models must be considered with this limitation in mind.

Chapter 4 – Descriptive Univariate Analysis

Descriptive statistics for both the general population and the MHC sub-population of individuals who experienced either MD or GAD are discussed below. Unweighted sample frequencies, weighted means, and 95% confidence intervals are provided for all categorical variables, and weighted means along with 95% confidence intervals are provided for all continuous variables (see tables 2 and 3).

Independent and Dependent Variables

General Population

The general population consists of 14,568 non-student Canadian adults between the ages of 20-64. A large majority of Canadian adults completed post-secondary education (68.04%; 95% CI = 66.67 – 69.41), indicating that Canadian adults within this population achieved a high level of education. About 16.14% (95% CI = 15.10 – 17.18) of Canadian adults completed high school. A small percentage of adults did not complete high school (10.84%; 9.90 – 11.78). Only 4.98% (95% CI = 4.29 = 5.67) of Canadian adults completed *some* post-secondary education as their highest level of education attainment.

Table 2: Descriptive Statistics for The General Population

	Sample Frequency	Mean (Weighted)		
		Estimate	95% Confidence Interval	
			Lower	Upper
Educational Attainment				
Less than Secondary School	1699	10.84	9.90	11.78
Secondary School Graduate	2486	16.14	15.10	17.18
Some Post Secondary School	702	4.98	4.29	5.67
Post Secondary School Graduate	9681	68.04	66.67	69.41
Income (Categorical)				
No Income or Less Than $20,000	839	3.42	3.03	3.81
$20, 000 - $39,999	1663	8.25	7.56	8.94
$40,000 - $59,999	2712	15.70	14.64	16.76

$60,000 - $79,999	2574	17.49	16.37	18.61
$80,000 or More	6780	55.13	53.68	56.58
Social Support (Continuous)				
Social Provisions Scale	N/A	36.11	35.99	36.23
Social Support (Quintile)				
First Quintile	917	5.71	5.06	6.36
Second Quintile	2302	15.88	14.78	16.98
Third Quintile	2204	14.75	13.69	15.81
Fourth Quintile	4409	29.53	28.22	30.84
Fifth Quintile	4736	34.13	32.74	35.52
Health Coverage				
Does Have Health Insurance	11207	78.65	77.47	79.83
Does Not Have Health Insurance	3361	21.35	20.17	22.53
Alcohol Consumption				
Does not Drink	2560	17.65	16.57	18.73
Light Drinker	6018	38.63	37.20	40.06
Moderate Drinker	4470	32.38	30.99	33.77
Heavy Drinker	1520	11.34	10.46	12.22
Race/Ethnicity				
White	12059	77.04	75.75	78.33
Non-white	2509	22.96	21.67	24.25
Age (Categorical)				
20-24 Years	1181	6.54	5.97	7.11
25-29 Years	1311	10.00	9.08	10.92
30-34 Years	1608	10.38	9.65	11.11
35-39 Years	1521	10.79	9.97	11.61
40-44 Years	1526	12.65	11.55	13.75
45-49 Years	1525	12.38	11.32	13.44
50-54 Years	1805	14.29	13.06	15.52
55-59 Years	2055	12.57	11.67	13.47
60-64 Years	2036	10.40	9.71	11.09
Age (Continuous)				
Age in Years	N/A	43.63	43.32	43.94
Sex				
Female	7747	49.80	48.33	51.27
Male	6821	50.20	48.73	51.67
Marital Status				
Married or Common-Law	8621	69.05	67.74	70.36
Not Married or Common-Law	5947	30.95	29.64	32.26
Place of Residence				
Urban Residence	8446	70.99	69.74	72.24
Rural Residence	6122	29.01	27.76	30.26
Working Status				
Employed	11012	80.14	79.08	81.20
Not Employed	3556	19.86	18.80	20.92

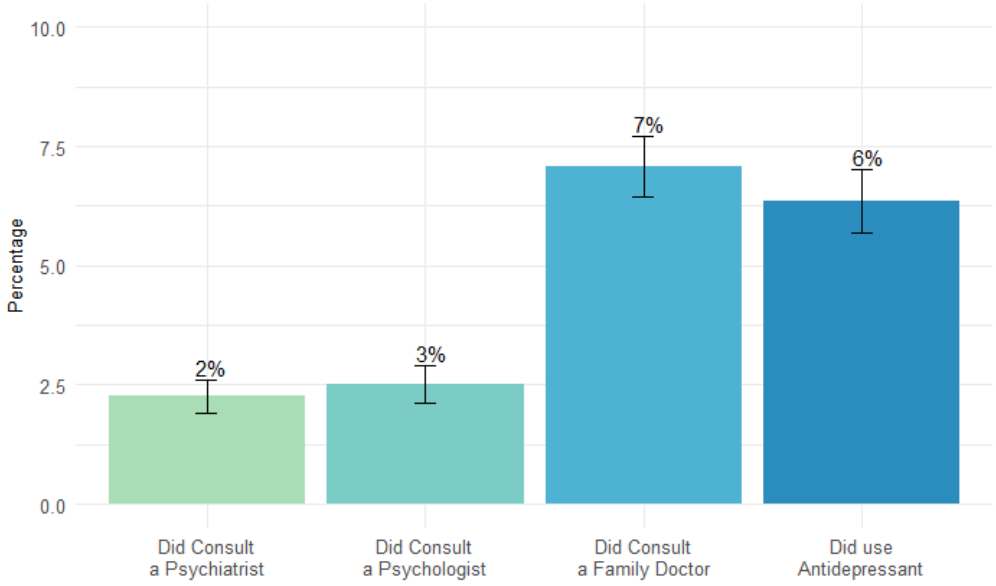
Province of Residence				
Atlantic Provinces	3466	6.96	6.59	7.33
British Columbia	1707	13.01	12.11	13.91
Ontario	3187	39.17	37.68	40.66
Prairie Provinces	3765	17.85	16.91	18.79
Quebec	2443	23.01	21.72	24.30
Immigrant Status				
Non-Immigrant	12216	74.87	73.48	76.26
Immigrant	2352	25.13	23.74	26.52
Consultation of a Psychiatrist				
Did Consult a Psychiatrist	419	2.26	1.91	2.61
Didn't Consult a Psychiatrist	14149	97.74	97.39	98.09
Consultation of a Psychologist				
Did Consult a Psychologist	416	2.51	2.12	2.90
Didn't Consult a Psychologist	14152	97.49	97.10	97.88
Consultation of a Family Doctor				
Did Consult a Family Doctor	1272	7.07	6.44	7.70
Didn't Consult a Family Doctor	13296	92.93	92.30	93.56
Use of an Antidepressant				
Did Use an Antidepressant	1106	6.34	5.67	7.01
Didn't Use an Antidepressant	13462	93.66	92.99	94.33
Episode of Major Depression (MD)				
Did Experience MD	877	4.85	4.34	5.36
Didn't Experience MD	13691	95.15	94.64	95.66
Generalized Anxiety Disorder (GAD)				
Did Experience GAD	530	2.77	2.40	3.14
Didn't Experienced GAD	14038	97.23	96.86	97.60

SOURCE: The 2012 Canadian Community Health Survey, N = 14,568. Only includes adults aged between 20-64 who are not students.
NOTES: The Sample Frequencies Are Not Weighted. The Means and 95% Confidence Intervals Are Weighted.

Canadian adults generally exhibited a high household income, as 55.13% (95% CI = 53.68 – 56.58) of the general population had a household income of $80,000 or more. Around 17.49% (95% CI = 16.37 – 18.61) and 15.70% (95% CI = 14.64 – 16.76) of Canadian adults had a household income of $60,000 to $79,999 and $40,000 to $59,999, respectively. A small percentage of Canadian adults' household incomes fell within the lower income categories of $20,000 - $39,999 (8.25%; 95% CI = 7.56 – 8.94) and less than $20,000 (3.42%; 95% CI = 3.03 – 3.81).

The percentage of Canadian adults in the general population who used mental health care in the years 2011 to 2012 varies based on the form of care that is considered. As shown in figure 1, 2.26% (95% CI = 1.91 – 2.61) of Canadian adults consulted a psychiatrist for problems related to mental health, emotions, alcohol, or drugs. A small portion of Canadian adults consulted a psychologist for problems related to mental health, emotions, alcohol, or drugs (2.51%; 95% CI = 2.12 – 2.90). A larger, yet still small, percentage of Canadian adults consulted a family doctor for problems related to emotions, mental health, alcohol, or drugs (7.07%; 95% CI = 6.44 – 7.70). Roughly 6.34% (95% CI = 5.67 – 7.01) of Canadian adults used an antidepressant medication.

Figure 1: Percentage of Canadian Adults Who Used Each Form of Mental Health Care in The General Population (n = 14,568)



SOURCE: 2012 Canadian Community Health Survey data, N = 14,568
NOTES: Presented here are the weighted means for the four outcome variables: consultation of a psychiatrist, consultation of a psychologist, consultation of a family doctor, and the use of an antidepressant within the general population. Values are rounded to the nearest whole number.

The distribution of mental health conditions experienced by Canadian adults in 2011 and 2012 demonstrates that most adults did not experience MD or GAD. Only 4.85% (95% CI = 4.34

– 5.36) of Canadian adults experienced an episode of MD in the years 2011 to 2012, whereas only 2.77% (95% CI = 2.40 – 3.14) of adults experienced GAD in the same time period.

Mental Health Condition Sub-Population

The MHC sub-population consists of 1,143 non-student Canadian adults between the ages of 20-64 who experienced either an episode of MD or GAD in the years 2011 to 2012. Like the general population, most Canadian adults within this sub-population achieved a post-secondary level of education (62.42%; 95% CI = 57.97 – 66.87), indicating a high level of educational attainment. About 17.08% (95% CI = 13.55 – 20.61) of Canadians within this sub-population attained a high school level of education. Within this sub-population, 13.83% (95% CI = 10.79 – 16.87) of Canadian adults did not complete high school. A minority of Canadian adults within this sub-population (6.67%; 95% CI = 4.59 – 8.75) completed *some* post-secondary school as their highest level of educational attainment.

Table 3: Descriptive Statistics for The Mental Health Condition Sub-Population

	Sample Frequency	Mean (Weighted)		
		Estimate	95% Confidence Interval	
			Lower	Upper
Educational Attainment				
Less than Secondary School	170	13.83	10.79	16.87
Secondary School Graduate	185	17.08	13.55	20.61
Some Post Secondary School	71	6.67	4.59	8.75
Post Secondary School Graduate	717	62.42	57.97	66.87
Household Income				
No Income or Less than $20,000	182	10.30	8.09	12.51
$20, 000 - $39,999	230	16.03	13.07	18.99
$40,000 - $59,999	237	21.15	16.74	25.56
$60,000 - $79,999	173	19.33	15.39	23.27
$80,000 or More	321	33.20	28.93	37.47
Social Support (Continuous)				
Social Provisions Scale	N/A	33.01	32.50	33.52
Social Support (Quintile)				
First Quintile	268	24.18	20.18	28.18

Second Quintile	195	14.98	12.00	17.96
Third Quintile	219	21.08	17.22	24.94
Fourth Quintile	281	24.32	19.99	28.65
Fifth Quintile	180	15.44	12.36	18.52
Health Coverage				
Does Have Health Insurance	883	79.95	76.50	83.40
Does Not Have Health Insurance	260	20.05	16.60	23.50
Alcohol Consumption				
Does not Drink	223	18.44	14.66	22.22
Light Drinker	519	46.42	41.72	51.12
Moderate Drinker	281	25.02	21.22	28.82
Heavy Drinker	120	10.13	7.74	12.52
Race/Ethnicity				
White	971	81.45	77.73	85.17
Non-white	172	18.55	14.83	22.27
Age (Categorical)				
20-24 Years	104	9.16	6.83	11.49
25-29 Years	95	9.95	7.17	12.73
30-34 Years	130	12.43	8.37	16.49
35-39 Years	125	12.71	9.63	15.79
40-44 Years	131	12.04	9.24	14.84
45-49 Years	155	16.64	12.78	20.50
50-54 Years	137	8.99	6.76	11.22
55-59 Years	158	11.52	9.01	14.03
60-64 Years	108	6.56	4.89	8.23
Age (Continuous)				
Age in Years	N/A	41.57	40.57	42.57
Sex				
Female	733	60.95	56.44	65.46
Male	410	39.05	34.54	43.56
Marital Status				
Married or Common-Law	458	50.50	45.84	55.16
Not Married or Common-Law	685	49.50	44.84	54.16
Place of Residence				
Urban Residence	689	68.55	63.89	73.21
Rural Residence	454	31.45	26.79	36.11
Working Status				
Employed	655	63.87	59.62	68.12
Not Employed	488	36.13	31.88	40.38
Province of Residence				
Atlantic Provinces	272	8.35	6.68	10.02
British Columbia	153	13.37	10.74	16.00
Ontario	251	39.34	34.44	44.24
Prairie Provinces	268	18.76	15.25	22.27
Quebec	199	20.19	16.78	23.60

Immigrant Status				
Non-Immigrant	1044	86.05	82.62	89.48
Immigrant	99	13.95	10.52	17.38
Consultation of a Psychiatrist				
Did Consult a Psychiatrist	240	20.18	16.51	23.85
Didn't Consult a Psychiatrist	903	79.82	76.15	83.49
Consultation of a Psychologist				
Did Consult a Psychologist	189	18.91	14.48	23.34
Didn't Consult a Psychologist	954	81.09	76.66	85.52
Consultation of a Family Doctor				
Did Consult a Family Doctor	544	47.22	42.54	51.90
Didn't Consult a Family Doctor	599	52.78	48.10	57.46
Use of an Antidepressant				
Did Use an Antidepressant	426	35.04	30.38	39.70
Didn't Use an Antidepressant	717	64.96	60.30	69.62

SOURCE: The 2012 Canadian Community Health Survey, N = 1,143. Only Includes Adults Between 20-64 Who Are Not Students and Experienced Either an Episode of Major Depression or Generalized Anxiety Disorder.

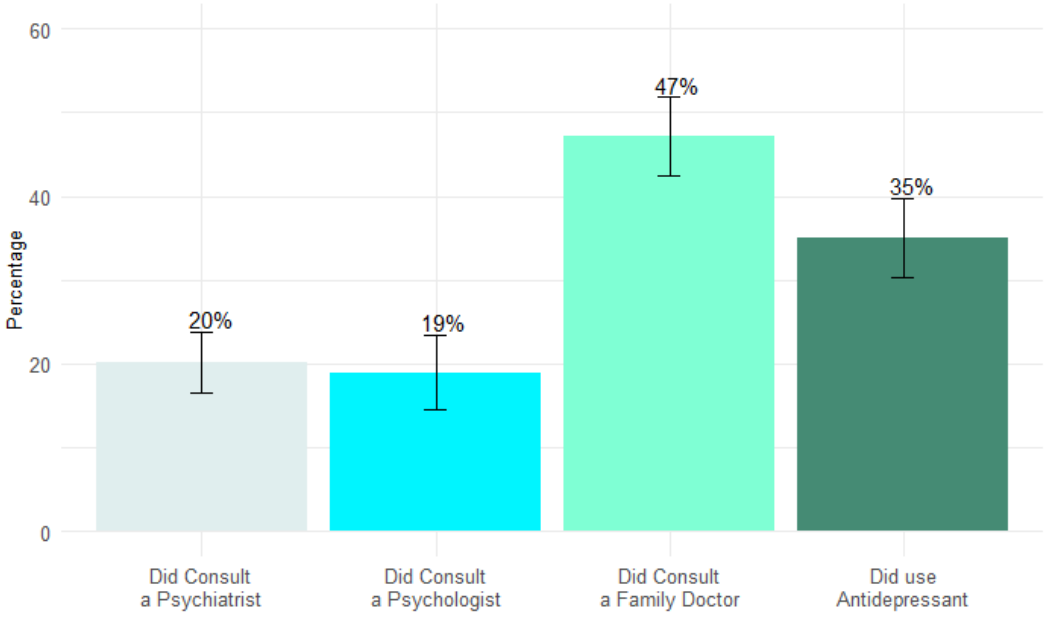
NOTES: The Sample Frequencies Are Not Weighted. The Means and 95% Confidence Intervals Are Weighted.

A third of Canadian adults within this sub-population had a household income of $80,000 or higher (33.20%; 95% CI = 28.93 – 37.47), indicating that the individuals who reported a mental health condition were less well off than individuals in the general population. Around 21.15% (95% CI = 16.74 – 25.56) of Canadian adults within this sub-population had a household income of $40,000 to $59,999. Approximately 19.33% (95% CI = 15.39 – 23.27) of the Canadian adults within this sub-population had a household income of $60,000 to $79,999. Within this sub-population 16.03% (95% CI = 13.07 – 18.99) of Canadian adults had a household income of $20,000 to $39,999. Only 10.30% (95% CI = 8.09 – 12.51) of Canadian adults within the sub-population had a household income that was less than $20,000.

Figure 2 illustrates that the use of mental health care within the MHC sub-population is quite high across all four types but varies depending on the form of care provided. A little over a fifth (20.18%; 95% CI = 16.51 – 23.85) of Canadian adults within this sub-population consulted a psychiatrist for problems related to emotions, mental health, alcohol, or drugs. A little less than

a fifth of the Canadian adults within the sub-population consulted a psychologist for these same issues (18.91%; 95% CI = 14.48 – 23.34). Almost half of the Canadians within the sub-population consulted a family doctor for the aforementioned issues (47.22%; 95% CI = 42.54 – 51.90). A little more than a third of Canadian adults within the sub-population used an antidepressant medication (35.04%; 95% CI = 30.38 – 39.70).

Figure 2: Percentage of Canadian Adults Who Used Each Form of Mental Health Care in The Sub-Population (n = 1,143)



SOURCE: 2012 Canadian Community Health Survey data, N = 1,143
NOTES: Presented here are the weighted means for the four outcome variables: consultation of a psychiatrist, consultation of a psychologist, consultation of a family doctor, and the use of an antidepressant within the sub-population. Values are rounded to the nearest whole number.

Control Variables

General Population

On average, Canadian adults display a high level of perceived social support (mean = 36.11 on a scale from 10-40; 95% CI = 35.99 – 36.23). Most Canadian adults had health insurance that covered some, or all, of their costs for prescription medications (78.65%; 95% CI = 77.47 – 79.83). The majority of Canadian adults were considered light drinkers (38.63%; 95%

CI = 37.20 – 40.06) or moderate drinkers (32.38%; 95% CI = 30.99 – 33.77), whereas a minority of adults never drank (17.65%; 95% CI = 16.57 – 18.73) and even less were heavy drinkers (11.34%; 95% CI = 10.46 – 12.22).

Canadian adults more frequently identified as white (77.04%; 95% CI = 75.75 – 78.33) as opposed to non-white (22.96%; 95% CI = 21.67 – 24.25). The majority of adults within the general population were middle-aged, with the average age sitting at 43.63 years (95% CI = 43.32 – 43.94). Males (50.20%; 95% CI = 48.73 – 51.67) were more common in the general population than females (49.80%; 95% CI = 48.33 – 51.27), albeit only by a slim margin. Around 69.05% (95% CI = 67.74 – 70.36) of Canadian adults were in a marriage or common-law relationship.

Most of the general population (70.99%; 95% CI = 69.74 – 72.24) lived in an urban area, as opposed to a rural area (29.01%; 95% CI = 27.76 – 30.26). Over three-quarters of Canadian adults were employed (80.14%; 95% CI = 79.08 – 81.20). Approximately 39.17% (95% CI = 37.68 – 40.66) of Canadian adults lived in the province of Ontario. A large minority of adults lived in Quebec (23.01%; 95% CI = 21.72 – 24.30). A smaller percentage of Canadians lived in the Prairie provinces (17.85%; 95% CI = 16.91 – 18.79). Only 13.01% (95% CI = 12.11 – 13.91) and 6.96% (95% CI = 6.59 – 7.33) of adults lived in British Columbia and the Atlantic provinces, respectively. The majority of Canadian adults were non-immigrants (74.87%; 95% CI = 73.48 – 76.26).

Mental Health Condition Sub-Population

Canadian adults within this sub-population exhibited, on average, a high level of perceived social support (mean = 33.01 on a scale between 10 to 40; 95% CI = 32.50 – 33.52). Over three quarters of this sub-population held health insurance that covers some, or all, of their

costs for prescription medication (79.95%; 95% CI = 76.50 – 83.40). Most Canadian adults within this sub-population are light drinkers (46.42%; 95% CI = 41.72 – 51.12), around a quarter are moderate drinkers (25.02%; 95% CI = 21.22 – 28.82), a little less than a fifth do not drink (18.44%; 95% CI = 14.66 – 22.22), and approximately a tenth are heavy drinkers (10.13%; 95% CI = 7.74 – 12.52).

Most Canadian adults in the sub-population identified as white (81.45%; 95% CI = 77.73 – 85.17). Canadian adults within the sub-population are, on average, slightly younger than those within the general population (mean = 41.57 years; 95% CI = 40.57 – 42.57). The majority of adults within the sub-population are female (60.95%; 95% CI = 56.44 – 65.46). A small majority of adults are either married or common-law (50.50%; 95% CI = 45.84 – 55.16).

As in the general population, most Canadian adults in the sub-population lived within an urban area (68.55%; 95% CI = 63.89 – 73.21). Slightly less than two-thirds of Canadian adults within the sub-population were employed (63.87%; 95% CI = 59.62 – 68.12). Canadians within the sub-population mostly lived within the province of Ontario (39.34%; 95% CI = 34.44 – 44.24). About 20.19% (95% CI = 16.78 – 23.60) of Canadian adults in the sub-population lived within Quebec. A slightly lower percentage of Canadian adults within the sub-population lived within the Prairie provinces (18.76%; 95% CI = 15.25 – 22.27). Around 13.37% (95% CI= 10.74 – 16.00) of Canadian adults within the sub-population lived within the province of British Columbia. Only 8.35% (95% CI = 6.68 – 10.02) of Canadian adults within the sub-population lived within the Atlantic provinces. The sub-population mainly consists of Canadian adults who were non-immigrants (86.05%; 95% CI = 82.62 – 89.48).

Summary of Univariate Analysis

The univariate analysis indicates that the majority of Canadian adults within both populations achieved a high level of education. Those within the general population had greater household incomes than those within the sub-population. Regarding mental health care service use, those within the sub-population more frequently used each type of service or treatment in comparison to those within the general population. This result is expected, because it indicates that those who have a mental health condition are more likely to receive care than those within the general population that comprise both those who experience a disorder and those who do not. However, it is still unclear whether the likelihood of using services and treatments varies by differences in socioeconomic resources in either population.

Canadian adults within the general population perceived greater levels of social support than those within the sub-population. Slightly more Canadian adults in the sub-population had health insurance for prescription medications. The alcohol consumption is fairly similar across both populations, with most adults falling into the light drinker or moderate drinker categories. Across both populations, Canadians were more likely to identify as white than non-white, but slightly more individuals identified as white in the sub-population. Canadian adults in the sub-population are marginally younger, on average, than adults in the general population. Men were more common in the general population, whereas women were overrepresented in the sub-population. In both populations, adults were most likely to be in a marriage or common-law relationship, albeit this marital status was more common in the general population. The majority of adults within both populations lived within an urban area. A larger proportion of adults in the general population were employed, in comparison to the sub-population. Canadian adults were most likely to live in Ontario within both populations. The majority of Canadian adults were

non-immigrants in both populations, although there were more non-immigrants in the sub-population than there were in the general population.

Chapter 5 – Bivariate Analysis

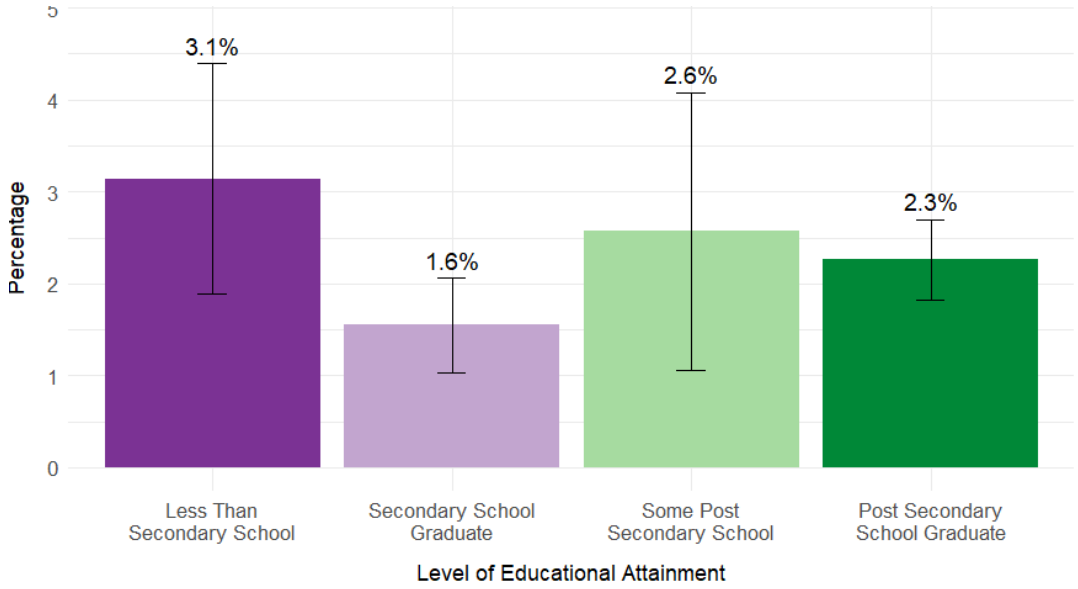
Conditional means for each dependent variable based on the distinct categories of the two independent variables are discussed below (see tables 4-11 in the appendix). For each form of mental health care, the conditional mean shows the percentage of individuals that used a specific type of care. P-values for the overall relationship between each independent variable and each dependent variable are presented as well.

General Population

Consultation of a Psychiatrist

The relationship between level of educational attainment and the consultation of a psychiatrist was not statistically significant ($p = 0.08$) at the conventional 0.05 alpha level. Figure 3 does not show a specific pattern for the relationship with education. Among Canadian adults within the general population who did not complete high school, 3.14% consulted a psychiatrist for problems related to emotions, mental health, alcohol, or drugs. Canadian adults who completed high school were slightly less likely to consult a psychiatrist for the aforementioned issues (1.55%). A total of 2.57% of Canadians who completed some form of post-secondary education consulted a psychiatrist in the years 2011 to 2012, whereas only 2.26% of adults who did complete post-secondary school consulted a psychiatrist in the same time frame.

Figure 3: The Percentage of Canadian Adults Who Consulted a Psychiatrist by Their Level of Educational Attainment in The General Population (n = 14,568)



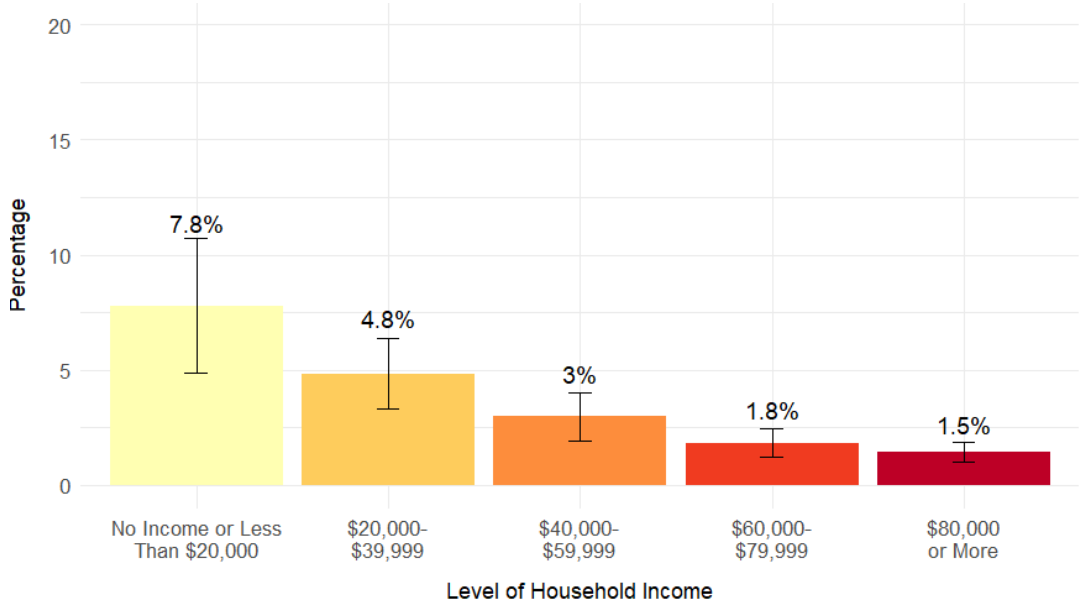
SOURCE: 2012 Canadian Community Health Survey data, N = 14,568
NOTES: Presented here are the conditional means (weighted) showing the percentage of individuals who consulted a psychiatrist based on the levels of educational attainment. Values are rounded to one decimal place.

The relationship between household income and the consultation of a psychiatrist was statistically significant at the 0.05 alpha level. About 7.79% of Canadian adults within the general population who had a total household income of less than $20,000 consulted a psychiatrist in the years 2011 to 2012. Within the income group of $20,000 to $39,999, 4.85% of adults consulted a psychiatrist. The share of Canadian adults who consulted a psychiatrist drops to 2.98% within the income group of $40,000 to $59,999. This downward trend continues when considering the higher income groups of $60,000 to $79,999 and $80,000 or more, as only 1.84% and 1.46% of individuals within these income groups consulted a psychiatrist, respectively.

As indicated in Figure 4, the relationship between household income and the consultation of a psychiatrist exhibits a negative relationship, where the percentage of Canadian adults who consulted a psychiatrist is highest within the lowest income group and then steadily decreases among each subsequent income group characterized by higher earnings. This relationship shows

that lower income Canadian adults within the general population are more likely to consult a psychiatrist than their higher income counter parts.

Figure 4: The Percentage of Canadian Adults Who Consulted a Psychiatrist by Their Level of Household Income in The General Population (n = 14,568)

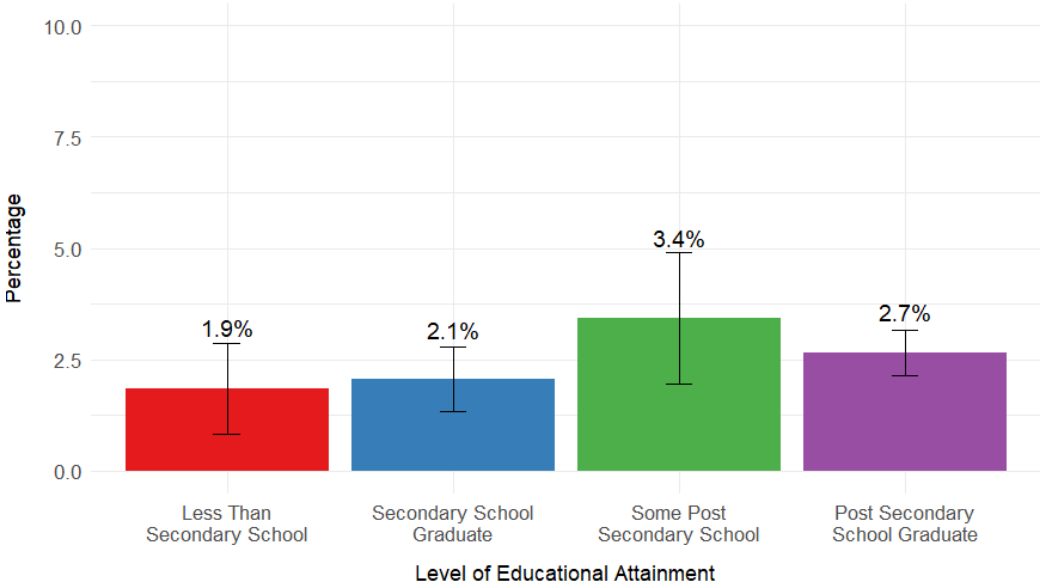


SOURCE: 2012 Canadian Community Health Survey data, N = 14,568
NOTES: Presented here are the conditional means (weighted) showing the percentage of individuals who consulted a psychiatrist based on the levels of household income. Values are rounded to one decimal place.

Consultation of a Psychologist

The relationship between educational attainment and the consultation of a psychologist was not statistically significant at the 0.05 alpha level ($p = 0.21$). Figure 5 depicts that approximately 1.85% of Canadian adults within the general population who did not complete high school consulted a psychologist in the years 2011 to 2012 for problems related to emotions, mental health, alcohol, or drugs. Around 2.05% of Canadian adults who completed high school consulted a psychologist. Approximately 3.44% of Canadian adults who completed some post-secondary school consulted a psychologist, whereas only 2.66% of those who completed post-secondary school consulted a psychologist.

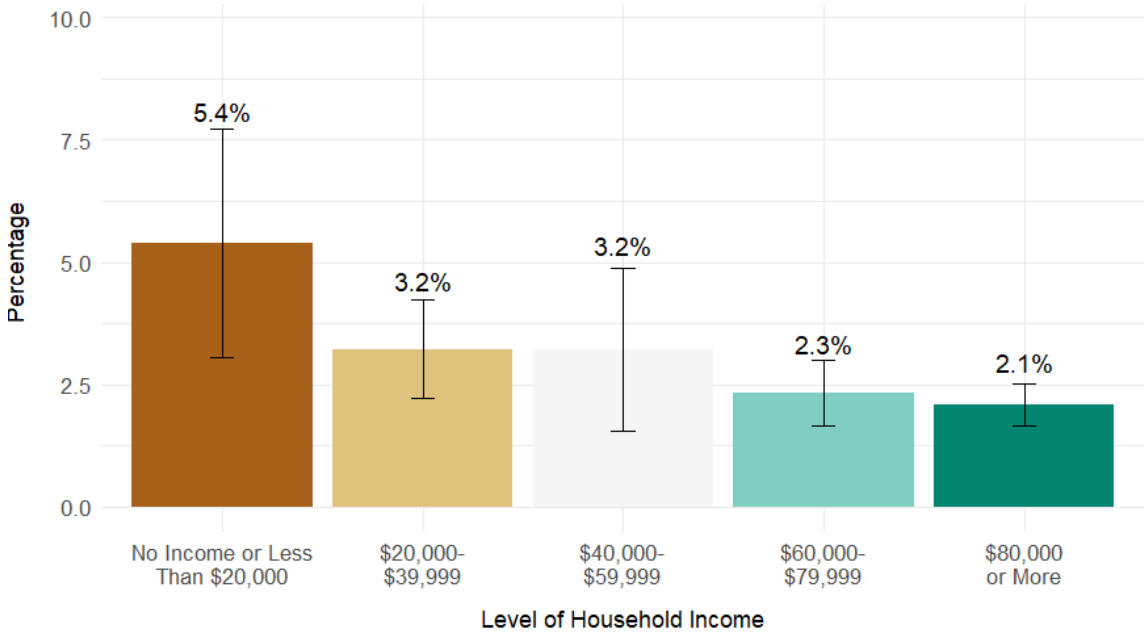
Figure 5: The Percentage of Canadian Adults Who Consulted a Psychologist by Their Level of Educational Attainment in The General Population (n = 14,568)



SOURCE: 2012 Canadian Community Health Survey data, N = 14,568
NOTES: Presented here are the conditional means (weighted) showing the percentage of individuals who consulted a psychologist based on the levels of educational attainment. Values are rounded to one decimal place.

The relationship between household income and the consultation of a psychologist demonstrates a statistically significant ($p < 0.05$) negative relationship, as the percentage of adults who consulted a psychologist decreased among each successive level of household income. Figure 6 shows that about 5.4% of Canadian adults who fell within the lowest income category – no income or less than $20,000 – consulted a psychologist in the years 2011 to 2012. Among Canadian adults who fell within the second lowest income category – $20,000 to $39,999 – only 3.23% consulted a psychologist. Roughly 3.21% of Canadian adults who had a total household income between $40,000 to $59,999 consulted a psychologist. Canadian adults who had a total household income of either $60,000 to $79,999 or $80,000 or more were less likely to consult a psychologist, as only 2.34% and 2.08% did so, respectively. According to this information, Canadian adults with lower incomes are more likely to consult a psychologist for problems related to emotions, mental health, alcohol, or drugs.

Figure 6: The Percentage of Canadian Adults Who Consulted a Psychologist by Their Level of Household Income in The General Population (n = 14,568)

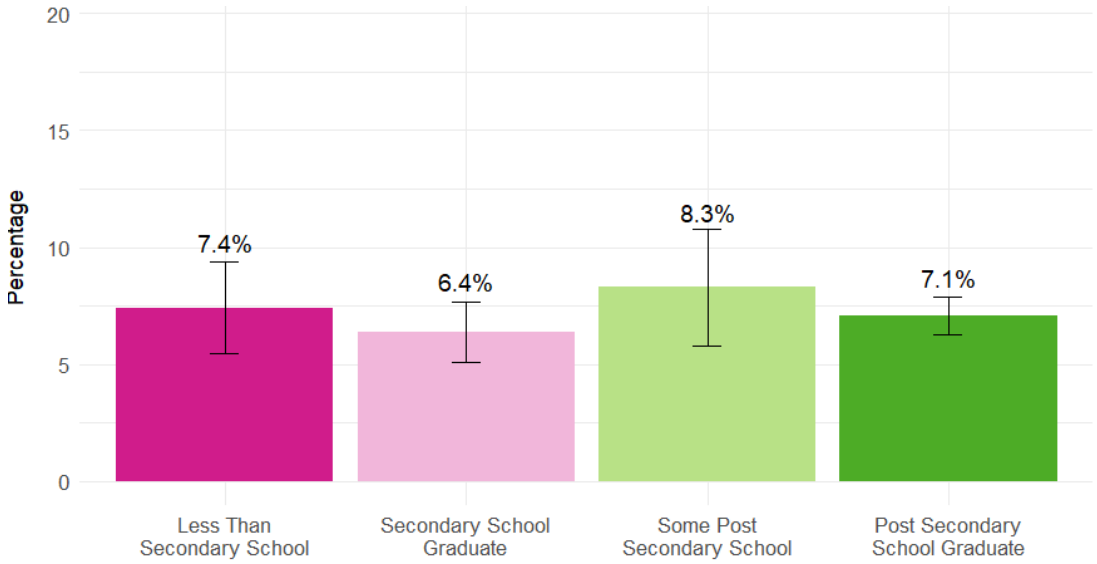


SOURCE: 2012 Canadian Community Health Survey data, N = 14,568
NOTES: Presented here are the conditional means (weighted) showing the percentage of individuals who consulted a psychologist based on the levels of household income. Values are rounded to one decimal place.

Consultation of a Family Doctor

According to Figure 7, the relationship between educational attainment and the consultation of a family doctor appears to be non-linear, however, the relationship between these two variables was not significant at the 0.05 alpha level. Among Canadian adults who did not complete high school, 7.41% consulted a family doctor for problems related to emotions, mental health, alcohol, or drugs in the years 2011 to 2012. Their counterparts who completed high school were slightly less likely to consult a family doctor for the aforementioned problems, as only 6.39% did so. Slightly less than a tenth (8.30%) of Canadian adults who completed some post-secondary consulted a family doctor. Whereas 7.09% of Canadian adults who completed post-secondary consulted a family doctor.

Figure 7: The Percentage of Canadian Adults Who Consulted a Family Doctor by Their Level of Educational Attainment in The General Population (n = 14,568)

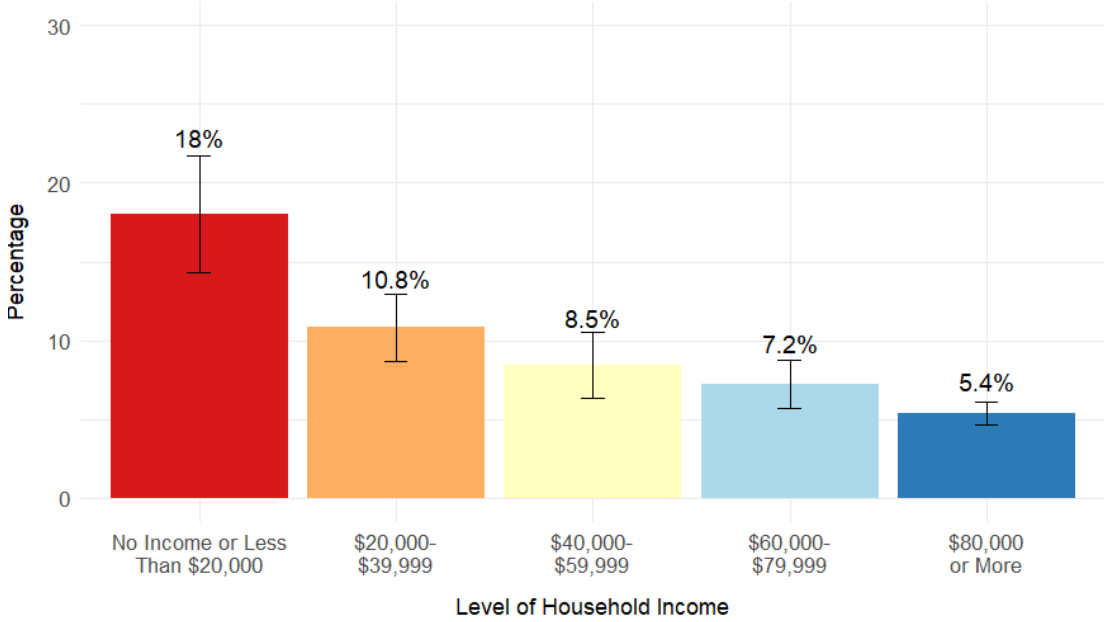


SOURCE: 2012 Canadian Community Health Survey data, N = 14,568
NOTES: Presented here are the conditional means (weighted) showing the percentage of individuals who consulted a family doctor based on the levels of educational attainment. Values are rounded to one decimal place.

The relationship between household income and the consultation of a family doctor was statistically significant ($p < 0.05$) and negative, as the percentage of adults who consulted a family doctor declined when considering progressively higher levels of household income. Figure 8 shows that 18.03% of Canadian adults who had a total household income of less than $20,000 consulted a family doctor in the years 2011 to 2012 for problems related to emotions, mental health, alcohol, or drugs. Among Canadian adults who had a total household income between $20,000 and $39,999, 10.83% consulted a family doctor. About 8.45% of Canadian adults who had a total household income between $40,000 and $59,999 consulted a family doctor. Canadian adults in the highest income categories, $60,000 to $79,999 and $80,000 or more, were less likely to consult a family doctor, as only 7.23% and 5.38% did so, respectively. This information suggests that Canadian adults in the general population who have a lower

household income are more likely to consult a family doctor than their counterparts who have a higher household income.

Figure 8: The Percentage of Canadian Adults Who Consulted a Family Doctor by Their Level of Household Income in The General Population (n = 14,568)

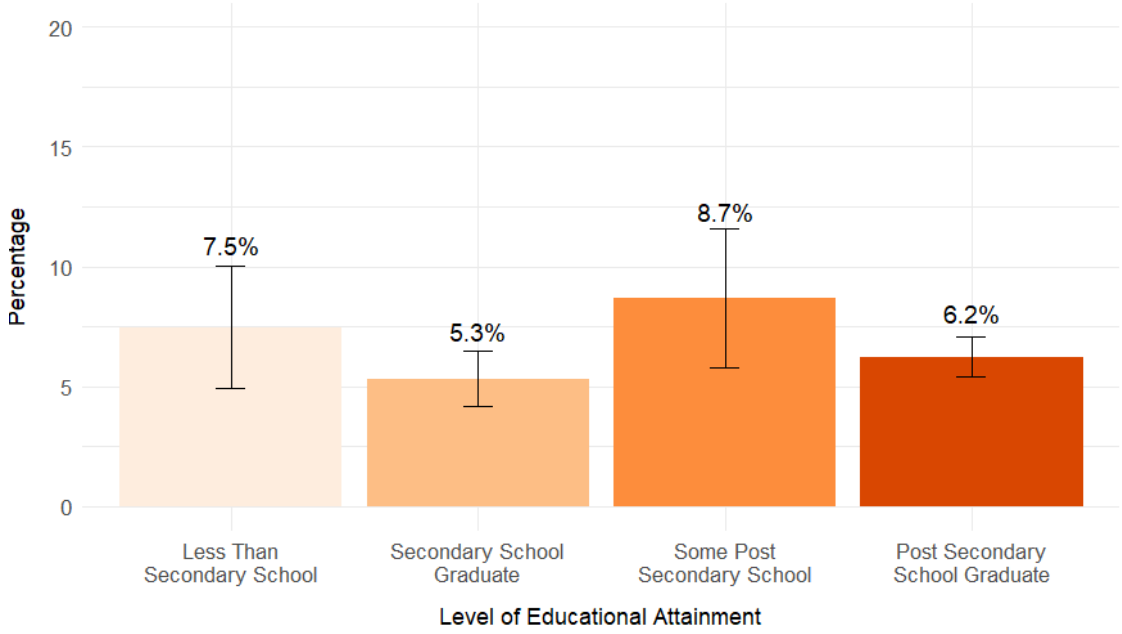


SOURCE: 2012 Canadian Community Health Survey data, N = 14,568
NOTES: Presented here are the conditional means (weighted) showing the percentage of individuals who consulted a family doctor based on the levels of household income. Values are rounded to one decimal place.

Use of an Antidepressant

Figure 9 exhibits that the relationship between educational attainment and the use of an antidepressant appears to be non-linear, however, this relationship was not statistically significant at the 0.05 alpha level. Around 7.48% of Canadian adults within the general population who did not complete high school used an antidepressant. The percentage of adults who used an antidepressant was lower among Canadian adults who completed high school (5.33%). The percentage of Canadian adults who used an antidepressant climbs among those who completed some post-secondary school (8.67%), but then decreases again among those who did complete post-secondary (6.23%).

Figure 9: The Percentage of Canadian Adults Who Used an Antidepressant Medication by Their Level of Educational Attainment in The General Population (n = 14,568)

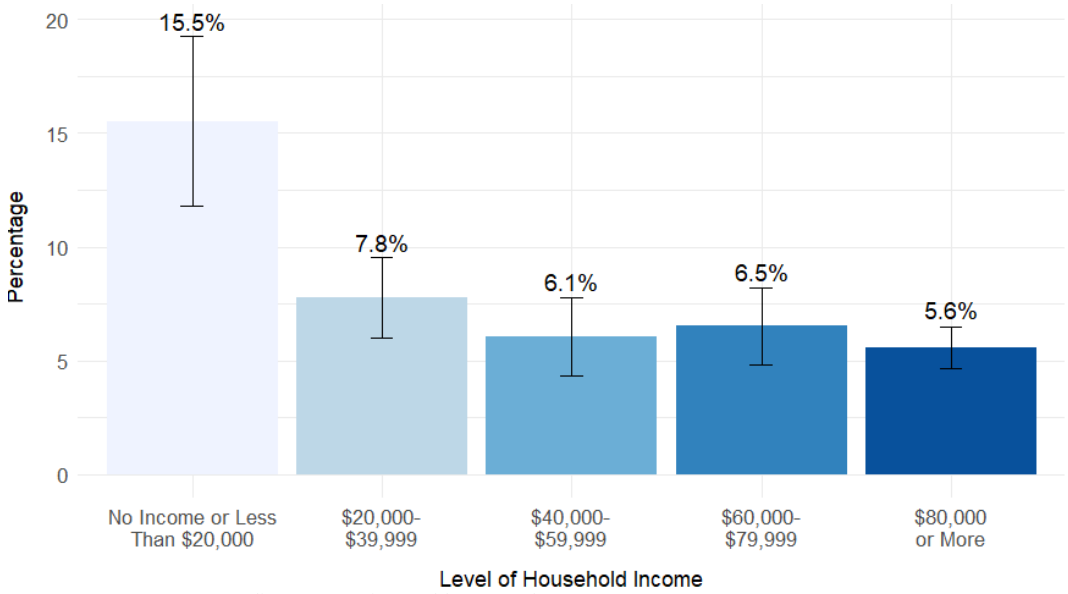


SOURCE: 2012 Canadian Community Health Survey data, N = 14,568
NOTES: Presented here are the conditional means (weighted) showing the percentage of individuals who used an antidepressant based on the levels of educational attainment. Values are rounded to one decimal place.

The relationship between household income and the use of an antidepressant was statistically significant ($p < 0.05$) and negative. Figure 10 depicts that approximately 15.53% of Canadian adults who fell into the lowest household income category – a household income of less than $20,000 – used an antidepressant. Among Canadian adults who earned a total household income between $20,000 and $39,999, 7.79% used an antidepressant medication. A slightly smaller percentage of Canadian adults (6.07%) used antidepressants among those who had a household income of $40,000 to $59,999. The share of Canadian adults who used an antidepressant marginally recovers among the $60,000 to $79,999 household income group (6.53%) but declines again among the $80,000 or more income group (5.57%). The percentage of Canadian adults who used an antidepressant medication was generally greater among those

whose household incomes were lower, notwithstanding the minor deviation from this pattern within the $60,000 to $79,999 household income category.

Figure 10: The Percentage of Canadian Adults Who Used an Antidepressant Medication by Their Level of Household Income in The General Population (n = 14,568)



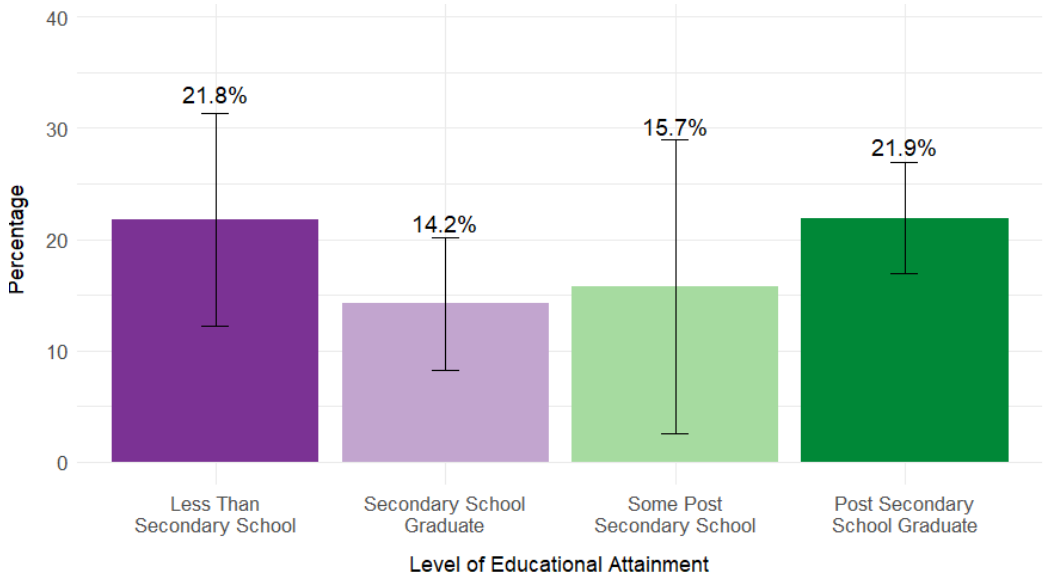
SOURCE: 2012 Canadian Community Health Survey data, N = 14,568
NOTES: Presented here are the conditional means (weighted) showing the percentage of individuals who used an antidepressant based on the levels of household income. Values are rounded to one decimal place.

Mental Health Condition Sub-Population

Consultation of a Psychiatrist

Figure 11 shows that the relationship between educational attainment and the consultation of a psychiatrist within the sub-population appears to be u-shaped, but this relationship was not significant at the 0.05 alpha level ($p = 0.37$). About 21.80% of Canadian adults who did not complete high school within the sub-population consulted a psychiatrist. Among their counterparts who did complete high school, 14.22% consulted a psychiatrist in the years 2011 to 2012. The percentage of Canadian adults within the sub-population who consulted a psychiatrist increased among those who completed some post-secondary school (15.73%) and those who completed post-secondary school (21.92%).

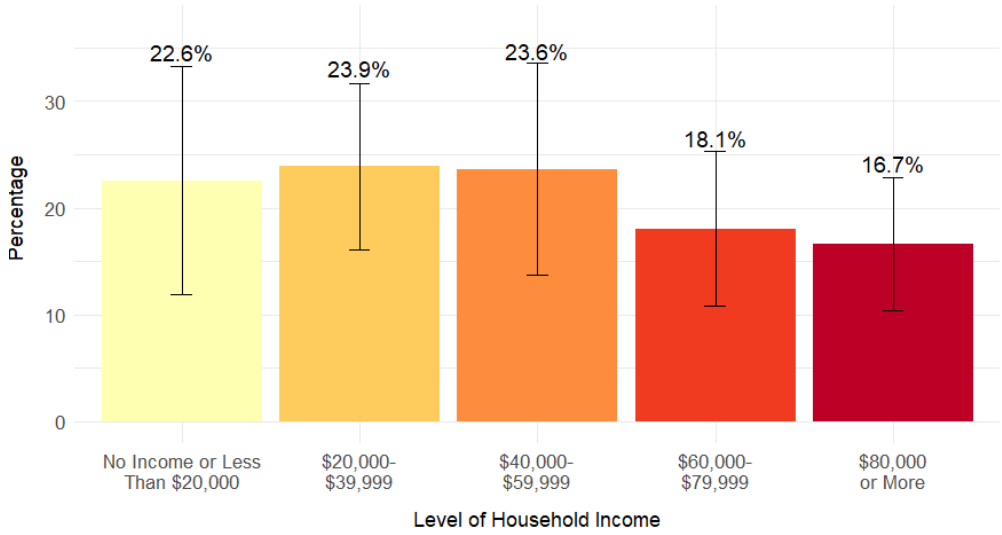
Figure 11: The Percentage of Canadian Adults Who Consulted a Psychiatrist by Their Level of Educational Attainment in The Sub-Population (n = 1,143)



SOURCE: 2012 Canadian Community Health Survey data, N = 1,143
NOTES: Presented here are the conditional means (weighted) showing the percentage of individuals who consulted a psychiatrist based on the levels of educational attainment. Values are rounded to one decimal place.

Figure 12 indicates that Canadian adults within the sub-population who fell into the lower household income categories appeared to be more likely to consult a psychiatrist for problems related to emotions, mental health, alcohol, or drugs than those within the higher income categories, but the relationship between household income and the consultation of a psychiatrist was not significant at the 0.05 alpha level ($p = 0.54$). Among Canadian adults within the sub-population who had a total household income of less than $20,000, 22.58% consulted a psychiatrist. About 23.88% and 23.65% of Canadian adults within the sub-population who earned a total household income of either $20,000 to $39,999 or $40,000 to $59,999 consulted a psychiatrist. Around 18.07% of Canadian adults within the sub-population who had a household income of $60,000 to $79,999 consulted a psychiatrist. Whereas only 16.66% of Canadian adults within the sub-population who had a household income of $80,000 or more consulted a psychiatrist.

Figure 12: The Percentage of Canadian Adults Who Consulted a Psychiatrist by Their Level of Household Income in The Sub-Population (n = 1,143)

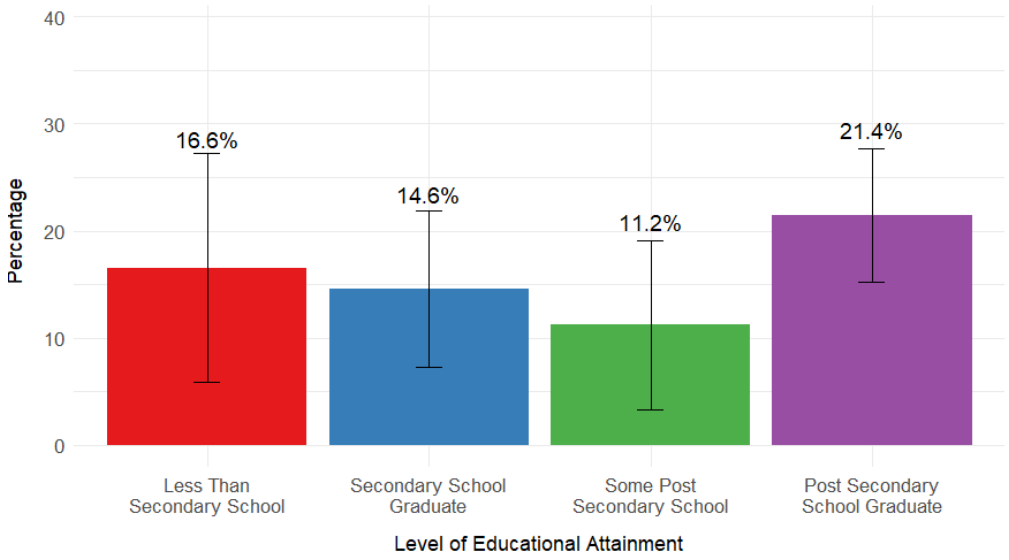


SOURCE: 2012 Canadian Community Health Survey data, N = 1,143
NOTES: Presented here are the conditional means (weighted) showing the percentage of individuals who consulted a psychiatrist based on the levels of household income. Values are rounded to one decimal place.

Consultation of a Psychologist

According to Figure 13, the relationship between educational attainment and the consultation of a psychologist seemed to show that Canadian adults who experienced MD or GAD were more likely to consult a psychologist for problems related to emotions, mental health, alcohol, or drugs when they had attained either the lowest level of education or the highest level of education, but this relationship was not significant at the 0.05 alpha level ($p = 0.31$). Around 16.57% of Canadian adults within the sub-population who did not complete high school consulted a psychologist for problems related to emotions, mental health, alcohol, or drugs. Approximately 14.61% of Canadian adults within the sub-population who completed high school consulted a psychologist. Roughly 11.23% of Canadian adults consulted a psychologist among those who completed some post-secondary school within the sub-population. The percentage of Canadian adults who consulted a psychologist recovers among those who completed post-secondary school (21.43%).

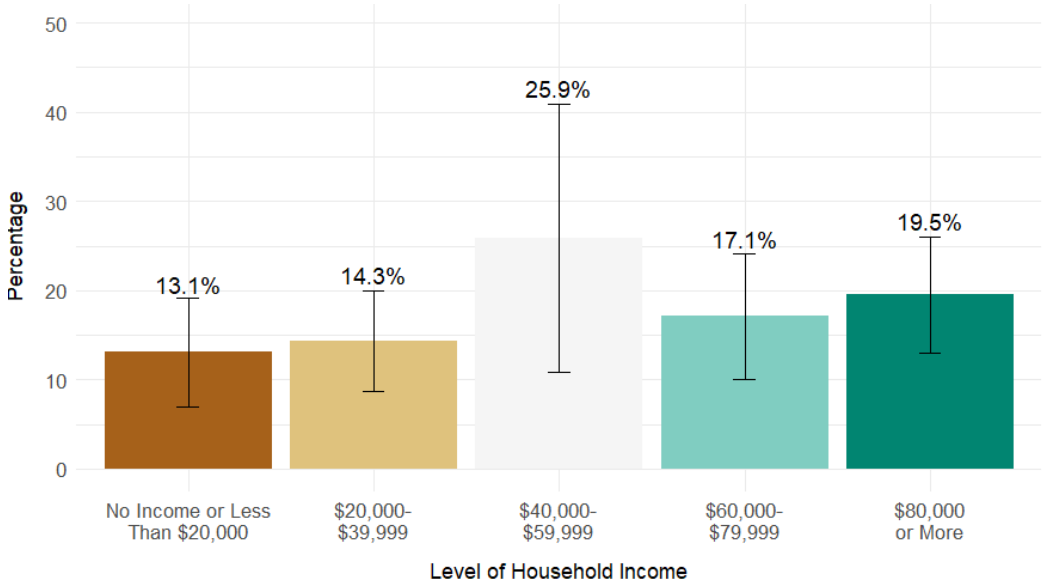
Figure 13: The Percentage of Canadian Adults Who Consulted a Psychologist by Their Level of Educational Attainment in The Sub-Population (n = 1,143)



SOURCE: 2012 Canadian Community Health Survey data, N = 1,143
NOTES: Presented here are the conditional means (weighted) showing the percentage of individuals who consulted a psychologist based on the levels of educational attainment. Values are rounded to one decimal place.

For the relationship between household income and the consultation of a psychologist, Figure 14 illustrates a general pattern that seems to show that adults with middle to high household incomes were the most likely to consult a psychologist, however, the relationship between these variables was not significant at the 0.05 alpha level. About 13.11% of Canadian adults within the sub-population who had a household income of less than $20,000 consulted a psychologist. The percentage of Canadian adults within the sub-population who consulted a psychologist was slightly higher among those who had a household income between $20,000 and $39,999 (14.34%). Roughly 25.87% of Canadian adults within the sub-population who had a household income between $40,000 and $59,999 consulted a psychologist. Around 17.11% of Canadian adults within the sub-population who had a household income of $60,000 to $79,999 consulted a psychologist, whereas 19.54% of those who had a household income of $80,000 or more consulted this service provider.

Figure 14: The Percentage of Canadian Adults Who Consulted a Psychologist by Their Level of Household Income in The Sub-Population (n = 1,143)

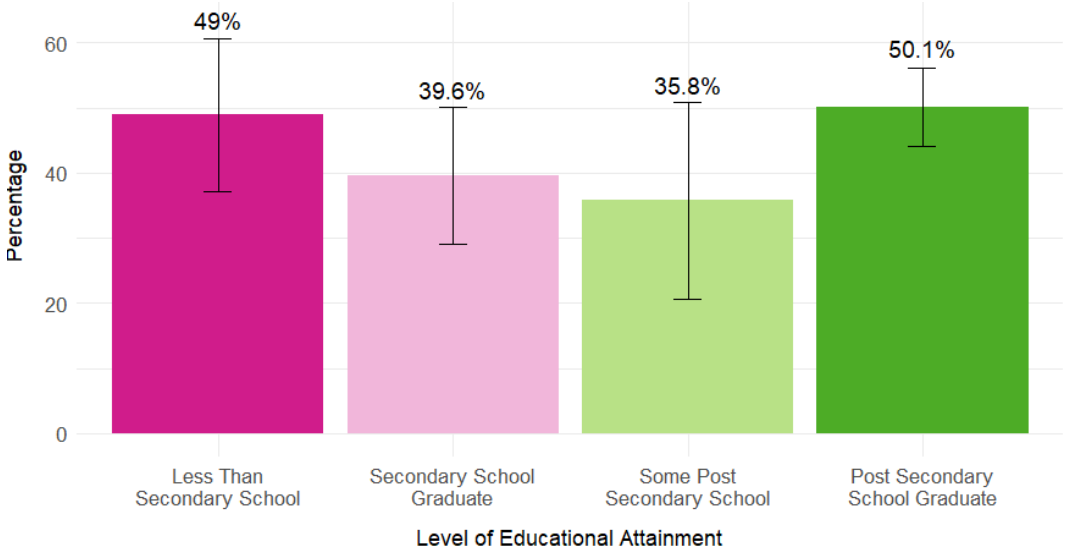


SOURCE: 2012 Canadian Community Health Survey data, N = 1,143
NOTES: Presented here are the conditional means (weighted) showing the percentage of individuals who consulted a psychologist based on the levels of household income. Values are rounded to one decimal place.

Consultation of a Family Doctor

According to Figure 15, the relationship between educational attainment and the consultation of a family doctor demonstrates a seemingly u-shaped relationship, where those who had either the lowest level or highest level of educational attainment appeared the most likely to consult a family doctor for problems related to emotions, mental health, alcohol, or drugs. However, the relationship between these two variables was not significant at the 0.05 alpha level. Approximately 49% of Canadian adults within the sub-population who did not complete high school consulted a family doctor for reasons related to emotions, mental health, alcohol, or drugs. Among those who did complete high school, 39.57% consulted a family doctor for these same issues. A little over a third (35.81%) of Canadian adults who completed some post-secondary school consulted a family doctor for emotions, mental health, alcohol, or drugs, but among those who did complete post-secondary, a little over half (50.14%) consulted a family doctor for the aforementioned reasons.

Figure 15: The Percentage of Canadian Adults Who Consulted a Family Doctor by Their Level of Educational Attainment in The Sub-Population (n = 1,143)

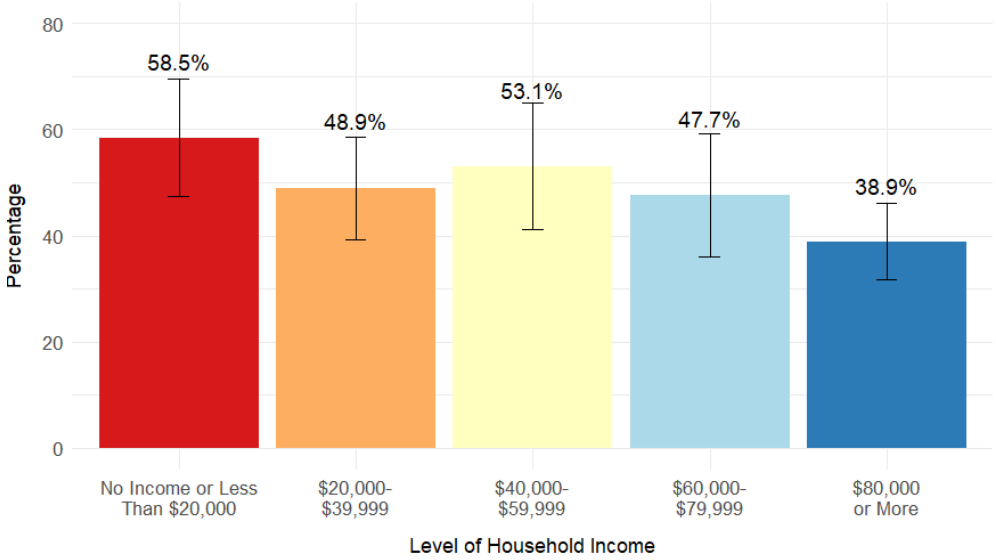


SOURCE: 2012 Canadian Community Health Survey data, N = 1,143
NOTES: Presented here are the conditional means (weighted) showing the percentage of individuals who consulted a family doctor based on the levels of educational attainment. Values are rounded to one decimal place.

The relationship between household income and the consultation of a family doctor appears to be non-linear according to Figure 16, with fluctuation in the percentage of adults who consulted a family doctor among the income categories. However, the relationship between household income and the consultation of a family doctor for problems related to emotions, mental health, alcohol, or drugs was not statistically significant at the 0.05 alpha level. Among Canadian adults within the sub-population who fell within the lowest household income category (no income or less than $20,000), 58.47% consulted a family doctor. About 48.89% of Canadian adults within the sub-population who had a household income between $20,000 and $39,999 consulted a family doctor. A little over half (53.1%) of Canadian adults within the sub-population who fell within the middle-income category consulted a family doctor. Less than half (47.72%) of Canadian adults within the sub-population who had a household income between

$60,000 to $79,999 consulted a family doctor. Only 38.9% of the Canadian adults within the sub-population who had a household income of $80,000 or more consulted a family doctor.

Figure 16: The Percentage of Canadian Adults Who Consulted a Family Doctor by Their Level of Household Income in The Sub-Population (n = 1,143)



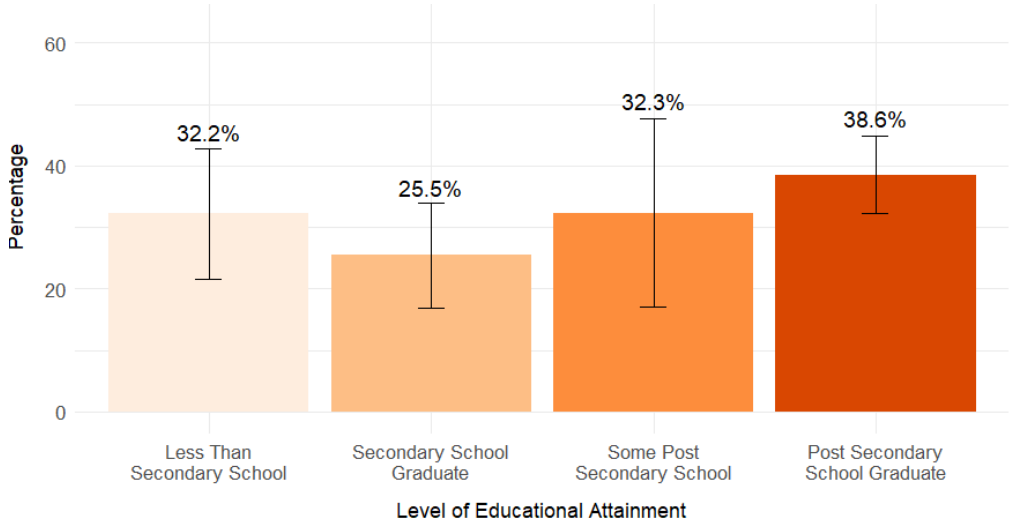
SOURCE: 2012 Canadian Community Health Survey data, N = 1,143
NOTES: Presented here are the conditional means (weighted) showing the percentage of individuals who consulted a family doctor based on the levels of household income. Values are rounded to one decimal place.

Use of an Antidepressant

The relationship between educational attainment and the use of an antidepressant medication within the sub-population is seemingly non-linear based on Figure 17, suggesting that Canadian adults who achieved a greater level of education were generally more likely to use an antidepressant medication. But the relationship between these two variables was not statistically significant at the 0.05 alpha level. About a third (32.25%) of Canadian adults who did not complete high school within the sub-population used an antidepressant medication. Approximately a quarter (25.46%) of Canadian adults who did complete high school within the sub-population used an antidepressant medication. Around a third (32.35%) of Canadian adults who completed some post-secondary education within the sub-population used an antidepressant

medication. Whereas 38.57% of Canadian adults within the sub-population who completed post-secondary education used an antidepressant medication.

Figure 17: The Percentage of Canadian Adults Who Used an Antidepressant by Their Level of Educational Attainment in The Sub-Population (n = 1,143)

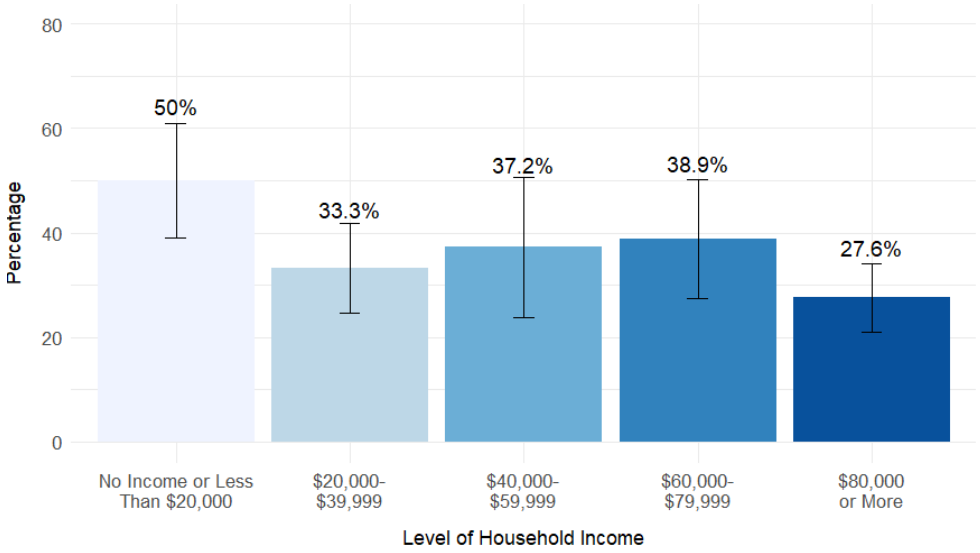


SOURCE: 2012 Canadian Community Health Survey data, N = 1,143
NOTES: Presented here are the conditional means (weighted) showing the percentage of individuals who used an antidepressant based on the levels of educational attainment. Values are rounded to one decimal place.

The relationship between household income and the use of an antidepressant medication seems to be non-linear when viewing Figure 18, with the percentage of individuals who used an antidepressant appearing to vary throughout the income distribution. But the relationship between these two variables was not statistically significant at the 0.05 alpha level ($p = 0.06$). Among the adults within the sub-population who had a total household income of less than $20,000, half (50.01%) used an antidepressant medication. A third of adults (33.27%) who had a household income between $20,000 and $39,999 used an antidepressant. Approximately 37.23% of adults within the $40,000 to $59,999 income category used an antidepressant. About 38.89% of adults within the $60,000 to $79,999 income category used an antidepressant. A little more

than a quarter (27.6%) of adults within the highest income category ($80,000 or more) used an antidepressant.

Figure 18: The Percentage of Canadian Adults Who Used an Antidepressant by Their Level of Household Income in The Sub-Population (n = 1,143)



SOURCE: 2012 Canadian Community Health Survey data, N = 1,143
NOTES: Presented here are the conditional means (weighted) showing the percentage of individuals who used an antidepressant based on the levels of household income. Values are rounded to one decimal place.

Summary of Bivariate Analysis

The results of the bivariate analysis provide a tentative answer to my research question: what is the relationship between educational attainment, income, and the likelihood that Canadian adults will use mental health care services and treatments? The analyses show that the likelihood of using any form of mental health care is not associated with educational attainment, as this factor was not significantly related to the use of any of the three service providers nor the use of an antidepressant medication in either population. Conversely, the findings also exhibit that household income was significantly related to all four outcomes in the general population, but like educational attainment, was unrelated to each outcome within the sub-population, which

suggests that income levels are not linked to the use of mental health services for those who experience a mental health condition.

Adults within the general population who earned lower incomes were more likely to use each form of mental health care. This pattern suggests that having greater levels of income does not provide an advantage to individuals in their use of mental health care in Canada, which is counter to what SSP suggests should have been the case.

While these results are encouraging, they are myopic. Other factors may be implicated in the likelihood that a Canadian adult will use mental health care services. In the next chapter, I further examine the relationships between education, income, and the likelihood of using mental health care services and treatments when also considering several additional factors that may affect these relationships.

Chapter 6 – Multivariate Analysis

I constructed four logistic regression models for each population to answer my research question: what is the relationship between educational attainment, income, and the likelihood that Canadian adults will use mental health care services and treatments? Each model contains the two independent variables – educational attainment and household income – in concert with several control variables that serve to contextualize the initial bivariate relationships uncovered in the previous chapter. The coefficients reported are average marginal effects (AMEs). In the interest of brevity, I only interpret the AMEs that are statistically significant within each model. Statistical significance occurs when the p-value for an AME is below the alpha level of 0.05.

General Population

Model 1: Consultation of a Psychiatrist

Neither educational attainment nor household income were significantly related to the consultation of a psychiatrist, net of the control variables (see table 12). This means that both of my predictions within my first hypothesis (H1a and H1b) – education and income will be positively associated with the consultation of a psychiatrist, net of all control variables – are not supported.

Table 12: Average Marginal Effects of Mental Health Care Use for Canadian Adults (General Population)

	Model 1 (Psychiatrist)		Model 2 (Psychologist)		Model 3 (Family Doctor)		Model 4 (Antidepressant Use)	
	AME	SE	AME	SE	AME	SE	AME	SE
Educational Attainment (Ref: Less than HS)								
Secondary School Graduate	-.007	(.005)	.005	(.006)	-.002	(.010)	-.014	(.012)
Some Post Secondary School	-.001	(.008)	.011	(.008)	.014	(.015)	.009	(.019)
Post Secondary School Graduate	.007	(.005)	.012*	(.006)	.022*	(.009)	.002	(.012)
Household Income (Ref: Less than $20,000)								
$20,000 - $39,999	-.000	(.008)	-.01	(.01)	-.030	(.017)	-.039*	(.016)
$40,000 - $59,999	-.001	(.008)	-.01	(.01)	-.035*	(.017)	-.043*	(.017)
$60,000 - $79,999	-.009	(.008)	-.01	(.01)	-.044*	(.018)	-.036*	(.018)
$80,000 or More	-.011	(.008)	-.02	(.01)	-.063***	(.018)	-.046**	(.017)
Social Support (Ref: First Quintile)								
Second Quintile	-.041***	(.012)	-.040*	(.016)	-.124***	(.024)	-.061**	(.020)
Third Quintile	-.034**	(.012)	-.026	(.016)	-.100***	(.024)	-.045*	(.021)
Fourth Quintile	-.042***	(.013)	-.030	(.016)	-.129***	(.023)	-.057**	(.020)

Fifth Quintile	-.045***	(.012)	-.043**	(.016)	-.148***	(.023)	-.088***	(.019)
Health Coverage (Ref: Has Health Insurance)								
Does Not Have Health Insurance	-.012**	(.004)	-.008	(.004)	-.031***	(.007)	-.029***	(.007)
Alcohol Use (Ref: Does Not Drink)								
Light Drinker	.001	(.005)	-.001	(.006)	.011	(.009)	.011	(.009)
Moderate Drinker	-.004	(.005)	.001	(.006)	.001	(.009)	-.009	(.009)
Heavy Drinker	.003	(.007)	.001	(.007)	.022	(.013)	.007	(.013)
Race/Ethnicity (Ref: White)								
Non-White	-.008*	(.004)	-.011	(.006)	-.024**	(.008)	-.028***	(.008)
Age (Categorical) (Ref: 20-24 Years)								
25-29 Years	-.009	(.012)	.001	(.007)	N/A	N/A	.009	(.008)
30-34 Years	-.002	(.013)	.024	(.013)	N/A	N/A	.048**	(.015)
35-39 Years	.003	(.013)	.013	(.009)	N/A	N/A	.046***	(.012)
40-44 Years	-.013	(.012)	.001	(.008)	N/A	N/A	.038**	(.013)
45-49 Years	-.004	(.012)	.004	(.008)	N/A	N/A	.063***	(.014)
50-54 Years	-.020	(.011)	-.007	(.007)	N/A	N/A	.035**	(.011)
55-59 Years	-.007	(.011)	-.012	(.007)	N/A	N/A	.048***	(.009)
60-64 Years	-.022*	(.011)	-.013	(.007)	N/A	N/A	.018*	(.008)
Age (Continuous)								
Age in Years	N/A	N/A	N/A	N/A	.000	(.000)	N/A	N/A
Sex (Ref: Female)								
Male	-.007	(.004)	-.02***	(.00)	-.040***	(.007)	-.044***	(.007)
Marital Status (Ref: Married or Common Law)								
Not Married or Common Law	.017***	(.005)	.012*	(.005)	.011	(.007)	.010	(.007)
Place of Residence (Ref: Urban)								
Rural	-.003	(.004)	-.003	(.005)	-.007	(.007)	.002	(.008)
Working Status (Ref: Employed)								
Not Employed	.034***	(.007)	.006	(.006)	.040***	(.009)	.033***	(.009)
Province of Residence (Ref: Prairie Provinces)								
British Columbia	.009	(.006)	-.006	(.005)	.000	(.011)	.002	(.011)
Ontario	.001	(.004)	-.005	(.006)	-.007	(.010)	-.011	(.010)
Atlantic Provinces	-.007	(.004)	-.003	(.005)	-.016	(.009)	-.008	(.010)
Quebec	-.002	(.005)	.015**	(.006)	-.037***	(.009)	-.018	(.010)
Immigrant Status (Ref: Non-Immigrant)								
Immigrant	-.014***	(.004)	-.016**	(.005)	-.044***	(.007)	-.048***	(.007)
Pseudo R-Squared	.15		.1		.1		.11	

*** p<.001, ** p<.01, * p<.05

NOTES: Presented here are the results of four logistic regression models predicting different forms of mental health care: the consultation of a psychiatrist (model 1), the consultation of a psychologist (model 2), the consultation of a family doctor (model 3), and the use of antidepressant medication (model 4).

Average marginal effects (AMEs) are interpreted as the average percentage point change in the probability that the dependent variable will occur, per unit change in a particular independent variable.

The standard errors (SE) are shown in parentheses.

SOURCE: 2012 Canadian Community Health Survey, N = 14,568

In terms of control variables, Canadian adults' perceived level of social support, when measured in quintiles, was significantly related to the consultation of a psychiatrist. The relationship between social support and the consultation of a psychiatrist was negative and indicates that when a Canadian adult's level of perceived social support falls within quintiles two through five of all social support scores, they are less likely to consult a psychiatrist for problems related to emotions, mental health, alcohol, or drugs than those who have a social support score in the first quintile.

Whether or not a Canadian adult had health insurance for prescription medications was significantly related to the consultation of a psychiatrist. On average, Canadian adults who did not have health insurance for prescription medications were less likely to consult a psychiatrist for problems related to emotions, mental health, alcohol, or drugs, than their peers who did have this form of insurance.

Regarding demographic variables, a Canadian adult's race/ethnicity was significantly related to the consultation of a psychiatrist. Non-white Canadian adults were, on average, less likely to consult a psychiatrist for problems related to emotions, mental health, alcohol, or drugs, than white Canadian adults. A Canadian adult's age was significantly related to the consultation of a psychiatrist. Canadian adults aged 60-64 were, on average, less likely to consult a psychiatrist for problems related to emotions, mental health, alcohol, or drugs, than Canadian adults aged 20-24. A Canadian adult's marital status was significantly related to the consultation of a psychiatrist. Canadian adults who were not in a marriage or common-law relationship were more likely to consult a psychiatrist than Canadian adults who were married or in a common-law relationship.

A Canadian adult's employment status was significantly related to the consultation of a psychiatrist. Canadian adults who were not employed were, on average, more likely to consult a psychiatrist than Canadian adults who were employed (including self-employment). A Canadian adult's immigrant status was significantly related to the consultation of a psychiatrist. In comparison to non-immigrant Canadian adults, immigrant Canadian adults were, on average, less likely to consult a psychiatrist.

Model 2: Consultation of a Psychologist

Educational attainment was significantly related to the consultation of a psychologist. Canadian adults who attained a post-secondary level of education were, on average, one percentage point more likely to consult a psychologist than Canadian adults who did not complete high school. This relationship demonstrates that attaining a higher level of education increases the likelihood that a Canadian adult will consult a psychologist for problems related to emotions, mental health, alcohol, or drugs, when the effects of additional variables are accounted for. This finding supports the first prediction I made in hypothesis 2 (H2a): Canadian adults with a greater level of educational attainment will be more likely to consult a psychologist.

Household income was not significantly related to the consultation of a psychologist for problems related to emotions, mental health, alcohol, or drugs. This finding does not support my second prediction within hypothesis 2 (H2b): low-income Canadian adults will be less likely to consult a psychologist than those with a high household income.

A Canadian adult's perceived level of social support, when measured in quintiles, was significantly related to the consultation of a psychologist. The relationship between perceived level of social support and the consultation of a psychologist suggests that, in general, those with greater levels of perceived social support are less likely to consult a psychologist than those who have the lowest levels of perceived social support, when alternative factors are taken into consideration.

A Canadian adult's sex was significantly related to the consultation of a psychologist. On average, men were less likely to consult a psychologist than women. A Canadian adult's marital status was significantly related to the consultation of a psychologist. Canadian adults who were

not in a marriage or common-law relationship were, on average, more likely to consult a psychologist than those who were in a marriage or common-law relationship.

A Canadian adult's province of residence was significantly related to the consultation of a psychologist, net of additional factors. On average, Canadian adults who lived within the province of Quebec were more likely to consult a psychologist than Canadian adults who lived within the Prairie provinces (e.g., Alberta, Manitoba, or Saskatchewan). A Canadian adult's immigrant status exhibited a significant relationship with the consultation of a psychologist, net of all other factors. Immigrants were, on average, less likely to consult a psychologist than non-immigrant Canadian adults.

Model 3: Consultation of a Family Doctor

A Canadian adult's level of educational attainment was significantly related to the consultation of a family doctor for problems related to emotions, mental health, alcohol, or drugs. On average, Canadian adults who completed post-secondary were two percentage points more likely to consult a family doctor than Canadian adults who did not complete high school, net of all additional factors. This suggests that Canadian adults who are better educated are more likely to consult a family doctor than their lesser educated peers. This finding supports the first prediction I made within hypothesis 3 (H3a): more education will increase the likelihood that a Canadian adult will consult a family doctor.

A Canadian adult's total household income was significantly related to the consultation of a family doctor. When Canadian adults had a total household income of either $40,000 to $59,999 or $60,000 to $79,999 they were, on average, four percentage points less likely to consult a family doctor than Canadian adults whose total household income was less than $20,000. Canadian adults whose household income was $80,000 or more, were, on average, six

percentage points less likely to consult a family doctor than Canadian adults whose total household income was less than $20,000. This finding suggests that when accounting for additional factors, Canadian adults in the lowest income category are more likely to consult a family doctor than their higher income counterparts. This finding does not support the second prediction that I made within hypothesis 3 (H3b): lower income Canadian adults will be less likely to consult a family doctor than higher income Canadian adults.

A Canadian adult's level of perceived social support was significantly related to the consultation of a family doctor, net of the effects of all additional factors. The relationship between these variables suggests that Canadian adults who perceive the lowest levels of social support, relative to their counterparts who perceive greater levels of social support, are more likely to use services provided by a family doctor.

Health insurance for prescription medications was significantly related to the consultation of a family doctor among Canadian adults, when taking into account all other factors. On average, Canadian adults who did not have health insurance for prescription medications were less likely to consult a family doctor than their counterparts who did have this form of health insurance.

A Canadian adult's race/ethnicity was significantly related to the consultation of a family doctor, net of all additional factors. Non-white Canadian adults were, on average, less likely to consult a family doctor than white Canadian adults. The sex of a Canadian adult was significantly related to the consultation of a family doctor, when accounting for all alternative factors. Male Canadian adults were, on average, less likely to consult a family doctor than female Canadian adults.

Working status was significantly related to the consultation of a family doctor among Canadian adults, when considering the effects of all additional factors. On average, Canadian adults who were not employed were more likely to consult a family doctor than Canadian adults who were employed (including those who were self-employed).

What province a Canadian adult lived in was significantly related to the consultation of a family doctor, when accounting for the influence of additional factors. Canadian adults who lived within the province of Quebec were, on average, less likely to consult a family doctor than those who lived within the Prairie provinces. Immigrant status was significantly related to the consultation of a family doctor among Canadian adults, when accounting for several additional factors. On average, immigrants were less likely to consult a family doctor than non-immigrant Canadian adults.

Model 4: Use of an Antidepressant

Educational attainment was not significantly related to a Canadian adult's use of an antidepressant. This finding does not support the first prediction that I made within my fourth hypothesis (H4a): a greater level of education will improve the likelihood that a Canadian adult will use an antidepressant medication.

Total household income was significantly related to the use of an antidepressant when considering the effects of alternative factors. Canadian adults who had a total household income of $20,000 to $39,999, $40,000 to $59,999, or $60,000 to $79,999 were, on average, four percentage points less likely to use an antidepressant medication than their counterparts who had a household income of less than $20,000. Canadian adults who had a household income of $80,000 or more were, on average, five percentage points less likely to use an antidepressant medication than those whose total household income was less than $20,000. This finding

suggests that higher income Canadian adults are less likely to use an antidepressant medication than lower income adults, which does not support the second prediction I made within hypothesis four (H4b), as it claimed that the inverse of this relationship would occur.

A Canadian adult's level of perceived social support was significantly related to the use of an antidepressant, net of additional factors. The relationship between these variables suggests that relative to those who perceive the lowest levels of social support, Canadian adults who perceive a higher level of social support are less likely to use an antidepressant medication.

Whether or not a Canadian adult had health insurance for prescription medications was significantly related to the use of an antidepressant medication, net of all additional factors. In general, Canadian adults who did not have health insurance for prescription medications were less likely to use an antidepressant than their counterparts who did have this form of insurance.

Race/ethnicity was significantly related to a Canadian adult's use of an antidepressant medication, when controlling for additional factors. Non-white Canadian adults were, on average, less likely to use an antidepressant medication than white Canadian adults. A Canadian adult's age was significantly related to the use of an antidepressant medication, when accounting for the effects of all alternative factors. Canadian adults who fell within any age group above 20-24 years were, on average, more likely to use an antidepressant medication than those within this youngest age category. The relationship between these variables suggests that middle-aged and older adults are, in general, more likely to use an antidepressant than younger Canadian adults. Whether or not a Canadian adult was male or female was related to the use of an antidepressant, net of additional factors. On average, men were less likely to use an antidepressant medication than women.

A Canadian adult's employment status was significantly related to the use of an antidepressant, when controlling for alternative factors. Unemployed Canadian adults were, on average, more likely to use an antidepressant than employed Canadian adults (including those who were self-employed). Immigrant status was significantly related to the use of an antidepressant medication, net of all additional factors. In general, immigrant Canadian adults were less likely to use an antidepressant than Canadian adults who were born within Canada.

Mental Health Condition Sub-Population

Within the MHC sub-population, neither educational attainment nor total household income were significantly related to the consultation of a psychiatrist, the consultation of a psychologist, the consultation of a family doctor, or the use of an antidepressant medication, when all other variables were considered (see table 13). These finding counter each of my predictions within hypotheses one through four, as I expected that across all four forms of mental health care, those with either a greater education or a greater income would be more likely to use each type of service provider and treatment.

Table 13: Average Marginal Effects of Mental Health Care Use for Canadian Adults Who Experienced Major Depression or Generalized Anxiety Disorder

	Model 1 (Psychiatrist)		Model 2 (Psychologist)		Model 3 (Family Doctor)		Model 4 (Antidepressant Use)	
	AME	SE	AME	SE	AME	SE	AME	SE
Educational Attainment (Ref: Less than HS)								
Secondary School Graduate	-.048	(-.055)	-.015	(-.069)	-.084	(-.077)	-.068	(-.073)
Some Post Secondary School	-.034	(-.080)	-.049	(-.069)	-.099	(-.091)	.021	(-.087)
Post Secondary School Graduate	.053	(-.054)	.019	(-.060)	.039	(-.067)	.064	(-.064)
Household Income (Ref: Less than $20,000)								
$20,000 - $39,999	.043	(-.054)	.011	(-.045)	-.072	(-.078)	-.120	(-.070)
$40,000 - $59,999	.067	(-.061)	.091	(-.059)	-.041	(-.081)	-.105	(-.076)
$60,000 - $79,999	.043	(-.061)	.049	(-.054)	-.063	(-.088)	-.031	(-.087)
$80,000 or More	.042	(-.068)	.068	(-.058)	-.150	(-.083)	-.139	(-.078)
Social Support (Ref: First Quintile)								
Second Quintile	N/A	N/A	-.040	(-.051)	-.203**	(-.064)	-.162**	(-.058)
Third Quintile	N/A	N/A	-.001	(-.047)	-.077	(-.063)	-.054	(-.057)
Fourth Quintile	N/A	N/A	.110	(-.062)	-.090	(-.066)	.051	(-.065)
Fifth Quintile	N/A	N/A	-.016	(-.055)	-.058	(-.068)	-.089	(-.063)
Social Support (Continuous)								

Social Provisions Scale	-.004	(-.003)	N/A	N/A	N/A	N/A	N/A	N/A
Health Coverage (Ref: Has Health Insurance)								
Does Not Have Health Insurance	N/A	N/A	N/A	N/A	-.124*	(-.049)	-.166***	(-.041)
Alcohol Use (Ref: Does Not Drink)								
Light Drinker	.014	(-.055)	-.131*	(-.060)	-.041	(-.063)	-.049	(-.060)
Moderate Drinker	-.005	(-.058)	-.138*	(-.063)	-.071	(-.069)	-.120	(-.063)
Heavy Drinker	-.106	(-.058)	-.147*	(-.067)	-.057	(-.082)	-.091	(-.075)
Race/Ethnicity (Ref: White)								
Non-White	-.079	(-.041)	-.122*	(-.051)	-.137*	(-.065)	-.153**	(-.056)
Age (Continuous)								
Age in Years	.000	(-.001)	-.003	(.001)	.002	(-.002)	.004*	(-.002)
Sex (Ref: Female)								
Male	.012	(-.037)	-.066*	(.033)	-.087*	(-.043)	-.057	(-.039)
Marital Status (Ref: Married or Common Law)								
Not Married or Common Law	.022	(-.040)	.053	(-.041)	-.011	(-.047)	.020	(-.045)
Place of Residence (Ref: Urban)								
Rural	-.021	(-.038)	.022	(-.042)	-.007	(-.049)	.020	(-.045)
Working Status (Ref: Employed)								
Not Employed	.149**	(-.050)	-.031	(-.041)	.082	(-.049)	.090	(-.047)
Province of Residence (Ref: Atlantic Provinces)								
British Columbia	.125*	(-.052)	.050	(-.057)	.159*	(-.067)	.005	(-.072)
Ontario	.079	(-.046)	.030	(-.050)	.086	(-.063)	-.025	(-.066)
Prairie Provinces	.070	(-.044)	-.022	(-.043)	.074	(-.065)	-.067	(-.066)
Quebec	.052	(-.045)	.179***	(-.051)	-.032	(-.061)	-.139*	(-.062)
Immigrant Status (Ref: Non-Immigrant)								
Immigrant	-.023	(-.061)	.021	(-.085)	-.126	(-.074)	-.089	(-.074)
Pseudo R-Squared	.06		.11		.09		.13	

*** p<.001, ** p<.01, * p<.05

NOTES: Presented here are the results of four logistic regression models predicting different forms of mental health care: the consultation of a psychiatrist (model 1), the consultation of a psychologist (model 2), the consultation of a family doctor (model 3), and the use of antidepressant medication (model 4). Average marginal effects (AMEs) are interpreted as the average percentage point change in the probability that the dependent variable will occur, per unit change in a particular independent variable. The standard errors (SE) are shown in parentheses. Please note that this table shows results for the sub-sample of Canadian adults who are non-students between the ages of 20-64 and have experienced either an episode of major depression or generalized anxiety disorder.

SOURCE: 2012 Canadian Community Health Survey data, N = 1,143

Model 1: Consultation of a Psychiatrist.

Within the sub-population, a Canadian adult's employment status was significantly related to the consultation of a psychiatrist when considering all alternative factors. Unemployed Canadian adults within the sub-population were, on average, more likely to consult a psychiatrist than employed Canadian adults (including those who were self-employed).

Within the sub-population, province of residence was significantly related to the consultation of a psychiatrist, net of all additional factors. Canadian adults within the sub-population who lived within the province of British Columbia were, on average, more likely to

consult a psychiatrist than those who lived within one of the Atlantic Provinces (e.g., Newfoundland and Labrador, Nova Scotia, Prince Edward Island, or New Brunswick).

Model 2: Consultation of a Psychologist

The alcohol consumption of Canadian adults within the sub-population was significantly related to the consultation of a psychologist, when taking into account all additional factors. The relationship between these variables suggests that Canadian adults within the sub-population who consume alcohol have a lower likelihood of consulting a psychologist relative to those who do not consume alcohol, and that the most frequent consumers of alcohol are the least likely to consult this type of service provider.

Within the sub-population, race/ethnicity was significantly related to the consultation of a psychologist, net of all additional factors. In comparison to white Canadian adults within the sub-population, non-white Canadian adults were, on average, less likely to consult a psychologist.

The sex of a Canadian adult within the sub-population was significantly related to the consultation of a psychologist, when accounting for all other factors. Canadian men within the sub-population, in comparison to women, were less likely to consult a psychologist. Within the sub-population, the province that a Canadian adult lived in was significantly related to the consultation of a psychologist, net of all alternative factors. Canadian adults within the sub-population who lived within the province of Quebec were more likely to consult a psychologist than Canadian adults who lived within one of the Atlantic provinces.

Model 3: Consultation of a Family Doctor

Among the Canadian adults within the sub-population, perceived level of social support was significantly related to the consultation of a family doctor, net of all other factors. Canadian adults within the sub-population whose level of perceived social support fell within the second

quintile were, on average, less likely to consult a family doctor for issues related to emotions, mental health, alcohol, or drugs, than their counterparts who fell within the first quintile.

Whether or not a Canadian adult within the sub-population had insurance for prescription medications was significantly related to the consultation of a family doctor, when considering all additional factors. Canadian adults within the sub-population who did not have health insurance for their prescription medications were, on average, less likely to consult a family doctor relative to those who did have this form of insurance.

When accounting for all other factors, race/ethnicity was significantly related to the consultation of a family doctor among Canadian adults within the sub-population. Non-white Canadian adults within the sub-population were, on average, less likely to consult a family doctor than white Canadian adults.

The sex of a Canadian adult within the sub-population was significantly related to the consultation of a family doctor, net of all additional factors. Canadian men within the sub-population were, on average, less likely to consult a family doctor than Canadian women. Among Canadian adults within the sub-population, province of residence was significantly related to the consultation of a family doctor. Canadian adults within the sub-population who lived within the province of British Columbia were, on average, more likely to consult a family doctor than those who lived within one of the Atlantic Provinces.

Model 4: Use of an Antidepressant

Among Canadian adults within the sub-population, perceived level of social support was significantly related to the use of an antidepressant medication, net of all additional factors. In comparison to Canadian adults within the sub-population whose level of perceived social support

fell within the first quintile, those within the second quintile were, on average, less likely to use an antidepressant medication.

Whether or not a Canadian adult within the sub-population had health insurance that covered their prescription medications was significantly related to the use of an antidepressant, net of all additional factors. Canadian adults within the sub-population who did not have health insurance for their prescription medications were, on average, less likely to use an antidepressant medication than their peers who did have this form of insurance.

For Canadian adults within the sub-population, race/ethnicity was significantly related to the use of an antidepressant when considering all other factors. On average, non-white Canadian adults within the sub-population were less likely to use an antidepressant than white Canadian adults. Age (continuous) was significantly related to the use of an antidepressant among Canadian adults within the sub-population, net of all additional factors. The relationship between these variables suggests that the likelihood of using an antidepressant increases as a Canadian adult's age increases. Net of all additional factors, province of residence was significantly related to the use of an antidepressant medication among Canadian adults within the sub-population. Canadian adults within the sub-population who lived within the province of Quebec were, on average, less likely to use an antidepressant than Canadian adults who lived within one of the Atlantic provinces.

Summary of Multivariate Analysis

The multivariate analysis offers a more extensive answer to my research question by providing evidence for and against my various hypotheses. Within the sub-population, none of my hypotheses were supported by my analyses, whereas some of my predictions are consistent with the results in the general population.

My first hypothesis that education and income would be positively associated with the consultation of a psychiatrist net of all other factors, was not supported by the results of my analysis in the general population. My second hypothesis, indicating a positive relationship between education, income, and the consultation of a psychologist, was partially consistent with the data. Greater education was related to a greater likelihood of consulting a psychologist, but income was unrelated to this outcome within the general population. My third hypothesis, that education and income would present a positive relationship with the consultation of a family doctor, matched the results within the general population in part. Greater education led to a greater likelihood of consulting a family doctor, but with income, the inverse was true, as lesser income equated into a greater likelihood of consulting a family doctor – which is counter to my stated prediction. My fourth hypothesis, which states that education and income are positively associated with the use of an antidepressant, was not supported by the results in the general population. Education was not related to the use of an antidepressant medication and those with the lowest household income demonstrated the greatest likelihood of using an antidepressant.

My regression models illustrate that the influence of education and income on the use of different forms of mental health care are not parallel. While education tends to positively relate to the consultation of a psychologist and the consultation of a family doctor, income exhibits a negative relationship with the consultation of a family doctor and the use of an antidepressant. When focusing on education, the relationships support a social stratification perspective and suggest that attaining a higher level of this socioeconomic resource may enhance an individual's likelihood of using certain mental health services. However, when considering income, the relationships counter SSP, as those within the lower income categories were more likely to use

viable mental health services, which suggests that greater levels of this socioeconomic resource may not provide an advantage in acquiring specific kinds of mental health care.

The models also highlight the role of several additional factors that appear to impact the likelihood that a Canadian adult will use mental health care services. These factors are especially prominent in the sub-population of individuals who experienced MD or GAD, where neither education nor income were connected to the use of any form of mental health care. The alternative factors that were connected to the four key outcomes include social support, race/ethnicity, province of residence, health coverage, alcohol consumption, age, sex, and working status.

Chapter 7 – Discussion and Conclusion

The Results and The Research Question

The results of my multivariate analysis provide an unexpected and nuanced answer to my research question: what is the relationship between educational attainment, income, and the likelihood that Canadian adults will use mental health care services and treatments? These results show that the relationship between educational attainment, income, and the use of mental health care by Canadian adults depends on the type of care that is considered and the population that is under investigation.

Within the general population of non-student Canadian adults between the ages of 20-64, educational attainment was related to the likelihood that a Canadian adult would consult a psychologist or a family doctor but was unrelated to whether they would consult a psychiatrist or use an antidepressant medication. Whereas household income was related to the likelihood that a Canadian adult would consult a family doctor or use an antidepressant but was unrelated to whether they would consult a psychiatrist or a psychologist. The likelihood that a Canadian adult will consult a psychologist, or a family doctor increases when they have a post-secondary level of education, albeit by a small amount. Conversely, when a Canadian adult has a higher household income, the likelihood that they will consult a family doctor or use an antidepressant medication decreases by a modest amount. Therefore, educational attainment and household income are distinctly related to the likelihood that a Canadian adult will use mental health care.

In contrast to the findings identified within the general population, the results within the sub-population pose a different answer to the research question. Neither educational attainment nor household income were significantly related to the likelihood that Canadian adults within the sub-population – which only included adults who experienced either MD or GAD – will use any

form of mental health care. Therefore, within the sub-population educational attainment and household income are not implicated in the likelihood that Canadian adults will use mental health services and treatments.

In addition to educational attainment and income, my models show that other factors are related to the likelihood that Canadian adults will use mental health services and treatments within both populations. I will discuss these alternative factors in the next sub-section.

The Results and The Literature

Educational Attainment

In general, educational attainment presents a positive relationship with the use of mental health service providers such as a psychiatrist, a psychologist, and a family doctor (Steele et al., 2007; Steele et al., 2006; Annequin et al., 2015; McDonald et al., 2017; Vasiliadis et al., 2009; Starkes et al., 2005; Vasiliadis et al., 2005; Wang et al., 2005), but some studies suggest that education is unrelated to the use of mental health care services (Roy-Byrne et al., 2009; Roberge et al., 2011). The relationship between education and antidepressant use is more complex. Some studies posit a positive relationship between these variables (Kivimäki et al., 2007; Marasine et al., 2021), some suggest a negative relationship (Annequin et al., 2015; Chavarria, 2021), and others provide evidence for no relationship (Butterworth et al., 2013).

My results demonstrate that educational attainment is positively related to the consultation of a psychologist and a family doctor but is unrelated to the consultation of a psychiatrist or the use of an antidepressant within the general population. In the sub-population, education is disconnected from any of these outcomes.

These finding are both consistent and inconsistent with the results present in the literature. The disagreements in the specific findings among the studies I discuss above, and my

own research, may be a consequence of discrepancies in methodology. For instance, there are differences in sample size and sample composition where some studies restricted their analyses to those who experienced particular mental health conditions (Steele et al., 2007), where others focused on the general population (Vasiliadis et al., 2009), and some, like me, included both (McDonald et al., 2017; Annequin et al., 2015). Likewise, there are differences in the variety of control variables that are included across the studies, which could serve to alter the final output and create differences in findings.

An important consideration is variation in the measurement of variables. Regarding service providers, not all researchers analysed the same care providers, or they operationalized service provision in terms of a composite measure (e.g., any use of a mental health professional) (McDonald et al., 2017), or they collapsed similar types of service providers into categories that indicate service sector (e.g., the specialty mental health sector) (Roy-Byrne et al., 2009; Roberge et al., 2011; Wang et al., 2005). In terms of antidepressant use, different measures of this outcome range from use within the past month (Butterworth et al., 2013), to use within the past 12-months (Beck et al., 2005; Lewer et al., 2015), to a reimbursement for this type of medication over the course of 18-months (Annequin et al., 2015). These timeframe differences may select for a greater or lesser proportion of users (Beck et al., 2005) and may affect results. Moreover, the manner in which mental health was measured during analysis varies across studies and may result in differences in findings. Furthermore, differences in research design, whether the data were longitudinal or cross-sectional, may account for the inconsistency in the findings.

Income

Income regularly displays an inconsistent relationship with the use of mental health service providers. A few studies indicate that there is no relationship between income and the use

of service providers (Steele et al., 2007; Vasiliadis et al., 2005; Starkes et al., 2005), while others suggest there is a relationship, but still disagree on its form.

Annequin et al. (2015) suggest that income has a negative relationship with the consultation of a psychiatrist, which is a result that is supported by Bartram et al. (2019) who discovered a link, albeit a more modest one, between lower income and the consultation of a psychiatrist. Individuals with greater incomes are more likely to consult a psychologist (Vasiliadis et al., 2009; Bartram, 2019). Whereas those with less income are less likely to use services offered by providers in the general medical sector (Roberge et al., 2011; Roy-Bryne et al., 2009). Individuals who earned a more modest income, between $30,000 to $49,000, are less likely to consult any mental health professional than those who earned $80,000 or more within the general population, while those who had an income of less than $15,000 and considered themselves to have poor mental health, are more likely to consult any mental health professional (McDonald et al., 2017).

Income tends to have a negative relationship with antidepressant use, as those with lower incomes are shown to be more likely to use an antidepressant, depending on the population that is examined (Marasine et al., 2021; Beck et al., 2005; Annequin et al., 2015). Conversely, income has shown no relationship with the use of psychotropic drugs, including, but not limited to, antidepressants (Dewa et al., 2005). Some researchers choose to measure financial resources with variables other than income, such as financial hardship and/or difficulty paying bills, which are shown to have significant relationships with antidepressant use (Lewer et al., 2015; Butterworth et al., 2013). While the results from Lewer et al. (2015), Butterworth et al. (2013), and Dewa et al. (2005) are less comparable to the other studies presented above and my own research, their results are important to consider, as they provide different pathways to consider

the relationships between financial resources and the use of pharmacological treatments for mental health conditions.

My results demonstrate a negative relationship between household income and the consultation of a family doctor and the use of an antidepressant medication, while also providing no evidence for a relationship between income and the consultation of a psychiatrist or a psychologist within the general population. In the sub-population of those who experienced MD or GAD, income had no bearing on service or treatment use of any kind. My results largely disagree with the previous findings linking income to the use of service providers and predominantly agree with the literature linking income to antidepressant use.

The methodological differences of my work and the research presented in the studies I discuss may have influenced, in part or in full, the distinct findings that were identified. As mentioned previously, variation in the measurement of variables, sample size and composition, and alternative discrepancies in research design may have contributed to the unique findings that have emerged.

Control Variables

Social support has generally displayed no relationship with the use of mental health service providers within Canada (Vasiliadis et al., 2009; Starkes et al., 2005), while at times presenting a significant relationship at the national level (Vasiliadis et al., 2005). In the United States, greater levels of social support have translated into greater use of services in the general medical sector – albeit with some variation in the source of social support and the reason for service use – while also decreasing the likelihood of using services in the specialty medical sector (Maulik et al., 2009). Conversely, social support has demonstrated a negative relationship with the use of mental health care in the United States, with greater levels of social support

relating to a lower likelihood of using any mental health service in the past 12 months, although this relationship reverses among those who experience more severe mental health conditions (Thoits, 2011).

I discovered that greater levels of social support largely decreased the likelihood that an individual would use services provided by a psychiatrist, a family doctor, and a psychologist in the general population, but this relationship was only present when considering the likelihood of consulting a family doctor in the sub-population. My results highlight ongoing debates within the literature regarding social support and mental health service use, as they support a general negative relationship between these variables and counter the suggestion that there is no relationship. Discrepancies in operationalization of social support must be considered as a potential cause of the differences in findings regarding this relationship.

The likelihood of using a psychotropic drug (i.e., a category that includes, but is not restricted to, antidepressants) appears to increase among those who have insurance for prescription medications within Canada, but the sample this estimate was drawn from only contained individuals who had either an affective or anxiety disorder (including those other than GAD) who consulted a physician (i.e., those who already had contact with a health care professional) (Dewa et al., 2005). Among sub-populations in both the United States and Canada who experienced a mental health condition, medical insurance (not restricted to insurance for medications) was unrelated to care provided in the general medical or the specialty medical sectors (Roy-Bryne et al., 2009; Roberge et al., 2011). Conversely, alternative research suggests that among individuals within the United States, those with insurance (not restricted to medication) were more likely to use health care treatments compared to those who did not have insurance (Wang et al., 2005). I found that within the general population, lacking health

insurance for prescription medications decreased the likelihood that an individual would consult a psychiatrist or a family doctor or use an antidepressant, and the latter two findings increased in magnitude within the sub-population.[2] It is worth noting that insurance will likely function differently in the United States and Canada due to the differences in each country's health care system.

McDonald et al. (2017) found that in the general population, risky consumption of alcohol was not related to the consultation of a mental health professional. I support this finding, as I did not find any relationship between a broader variable for alcohol consumption and the consultation of a psychiatrist, a psychologist, or a family doctor within the general population. Regarding antidepressant use, being considered a problematic drinker increased the likelihood that an individual would use an antidepressant among women, but just being a drinker did not influence antidepressant use (Chavarria et al., 2021). I found no relationship between alcohol use and antidepressant use in the general population or the sub-population.

Race/ethnicity is regularly linked to mental health care use (Vasiliadis et al., 2009; Vasiliadis et al., 2005; Dewa et al., 2005; Roy-Byrne et al., 2009; Wang et al., 2005). Specifically, it is connected to the likelihood that an individual will consult a family doctor within Canada (Vasiliadis et al., 2009) and the likelihood that an individual will use any mental health service in Quebec (Vasiliadis et al., 2005). In the United States, white individuals are more likely to use mental health services than non-white individuals (Roy-Byrne et al., 2009; Wang et al., 2005). White individuals within Canada are more likely to use various kinds of psychotropic medications (Dewa et al., 2005). My results largely mirror the literature, as I found that non-white individuals were less likely to consult a psychiatrist or a family doctor and were less likely to use an antidepressant than white individuals within the general population. While in

the sub-population, non-white individuals were less likely to consult a psychologist or a family doctor and were less likely to use an antidepressant than white individuals.

The relationship between age and the use of service providers is mixed and varies by the specifics of the outcome variable and the population under study. Some patterns are present in the literature, with younger people generally being more likely to use services provided in the specialty care sector (Starkes et al., 2005; Roy-Byrne et al., 2009; Wang et al., 2005), but age has shown a positive (Steele et al., 2007; Roberge et al., 2011) and negative (Starkes et al., 2005) relationship with service use in the general medical sector. When broader categories of mental health service use are applied, age has been both positively and negatively related to use of care (Wang et al., 2005; McDonald et al., 2005), or shown no relationship (Vasiliadis et al., 2009). The relationship between age and antidepressant use is more straightforward, with middle-aged to older individuals being more likely than younger individuals to use antidepressants (Lewer et al., 2015; Marasine et al., 2021; Beck et al., 2005; Chavarria et al., 2021). I found that older individuals (aged 60-64) were less likely to consult a psychiatrist than younger individuals (aged 20-24), but middle aged to older adults were more likely than younger adults to use antidepressants within the general population, while age was positively related to the use of an antidepressant in the sub-population. My results, then, were generally in-keeping with the literature.

The relationship between sex and the use of mental health service providers generally suggests that women are more likely than men to use mental health services, (Steele et al., 2007; Annequin et al., 2015; McDonald et al., 2017; Vasiliadis et al., 2009; Vasiliadis et al., 2005; Roy-Byrne et al., 2009; Roberge et al., 2011), but sometimes sex is unrelated to service use altogether or use in the mental heath speciality sector (Starkes et al., 2005; Roberge et al., 2011),

or is shown to have the opposite relationship with men being more likely to use care provided in the specialty sector than women (Wang et al., 2005). Regarding antidepressant use, women are more likely than men to use this form of medication (Lewer et al., 2015; Kivimäki et al., 2007; Marasine et al., 2021; Beck et al., 2005; Chavarria et al., 2021). I discovered that men were less likely than women to use services provided by a psychologist or a family doctor or use an antidepressant within the general population, while men were less likely to use services provided by a family doctor and a psychologist within the sub-population. My results replicate the general pattern that suggests women are more likely than men to use mental health care services and treatments.

On occasion, marital status presents no relationship with the use of mental health service providers (Vasiliadis et al., 2009; Starkes et al., 2005), but often those who are not married or living with a partner/common-law are more likely than those who are married or living with a partner/common-law to use mental health services offered by care providers (Steele et al., 2007; McDonald et al., 2017; Vasiliadis et al., 2005; Roy-Byrne et al., 2009; Roberge et al., 2011; Wang et al., 2005). The results for antidepressant use are varied in comparison, as being married/common-law or previously married equates into a greater likelihood of using this medication in some circumstances (Marasine et al., 2021; Beck et al., 2005), while in others, only being previously married increases use (Chavarria et al., 2021). I found that individuals who were not married or common-law were more likely than those who were to use services provided by a psychiatrist or a psychologist within the general population, but I found no relationship between marital status and any type of mental health service or treatment within the sub-population.

Place of residence is largely unrelated to the use of mental health service providers (Steele et al., 2007; Vasiliadis et al., 2009; Vasiliadis et al., 2005; Roberge et al., 2011; Roy-Byrne et al., 2009; Starkes et al., 2005), but rural Canadians and Americans appear to be less likely to use services offered by providers in the specialty mental health sector (Starkes et al., 2005; Wang et al., 2005). I identified no relationship between place of residence and the use of mental health services or treatments within the general population or the sub-population.

Being unemployed translates into a greater likelihood of consulting service providers in some circumstances (Steele et al., 2007; McDonald et al., 2017), while at other times working status is unrelated to the use of service providers (Roberge et al., 2011). In relation to antidepressant use, being unemployed increases the likelihood of using this form of medication, but not when mental health conditions are also considered (Lewer et al., 2015; Butterworth et al., 2013). I found that being unemployed improved the likelihood that an individual would consult a psychiatrist or a family doctor or use an antidepressant in the general population, but only improved the likelihood that an individual would consult a psychiatrist in the sub-population.

Province of residence is less common in examinations of mental health care service and treatment use. Notwithstanding this deficit, McDonald et al. (2017) show that people living within Alberta are more likely to consult a mental health professional than people living within Ontario, Starkes et al. (2005) suggest that there is no relationship between province of residence and the use of service providers, and Vasiliadis et al. (2005) show that what influences mental health care use varies by province. However, McDonald et al. (2017) only analyzed Alberta, New Brunswick, and Ontario, while Starkes et al. (2005) only analyzed the Atlantic provinces. I found that the likelihood of using mental health care services and treatments varied among some

provinces (see tables 12 and 13). More research is needed to clarify how province of residence relates to mental health care use in Canada.

Aside from Vasiliadis et al. (2009), who suggest that immigrants are more likely to consult a psychiatrist than non-immigrants, being an immigrant is generally associated with a lower likelihood of consulting mental health service providers in Canada (Steele et al., 2007; Vasiliadis et al., 2005). In France, being an immigrant is likewise associated with a lower likelihood of consulting a psychiatrist or using an antidepressant (Annequin et al., 2015). My results suggest that being an immigrant decreases an adult's likelihood of consulting a psychiatrist, a psychologist, or a family doctor and also decreases the likelihood that an individual will use an antidepressant within the general population, while immigrant status is unrelated to any of these outcomes within the sub-population.

Theoretical Implications

As mentioned above, educational attainment and household income do not relate to mental health services and treatment use in the same way, which means that my results do not fit perfectly with expectations based on a social stratification perspective. The logic of SSP suggests that those within higher socioeconomic positions in a given stratification system, as characterized by higher levels of both education and income, should be more likely than those in lower positions to accrue various benefits, including a greater likelihood of using mental health care. My results demonstrate that this is in part the case and, in part, incorrect.

When considering the resource of educational attainment, SSP seems to provide a useful mechanism to frame and understand my findings in the general population. Individuals who achieved a higher level of education and are therefore in a higher position within Canada's stratification system, are more likely to use services provided by a psychologist and family

doctor, which suggests that accumulating a greater level of this resource is at least somewhat beneficial in relation to the outcome of using two specific forms of mental health care.

Well-educated individuals have likely acquired some benefits through their educational journey that provides them with knowledge and information that improves their ability to use services provided by the Canadian health care system. But what exactly these benefits are is undetermined.

There is the possibility that individuals who have achieved a greater level of education are well-connected with a broader group of individuals and perhaps their social ties provide pathways to care through connections with individuals who understand how to navigate the health care system. For instance, more educated individuals may know people who work within the health care system themselves and are able to connect a willing patient with a willing provider, or they may know individuals who have connections within the health care system and are able to act as a mediator between the willing patient and the providers in the health care system that are able to offer the desired care. Alternatively, when a more educated individual discloses issues related to their mental health they may be seen by providers as more credible than those with less education, they may have more sophisticated abilities to advocate for themselves in the health care system, or they may have improved mental health literacy that translates into a greater understanding of particular mental health conditions and their symptomatology (Starkes et al., 2005; Steele et al., 2007; Roberge et al., 2011). My results, of course, cannot substantiate any of these particular pathways, but future research should explore these potential explanations.

When it comes to household income, SSP appears to be a less useful framework to understand my findings. I found that those with less household income are more likely to consult

a family doctor or use an antidepressant. This is counter to what I should have expected to find given SSP, as this finding shows that when one has a lower level of income and is therefore in a lower socioeconomic position, they are more likely to use these two forms of care. This means that having a greater level of household income does not seem to provide an advantage in relation to the outcome of using of these specific forms of care.

Perhaps this is a result of Canada's universal health care system and its emphasis on providing care to citizens regardless of one's financial standing and is therefore evidence that this system protects and supports the economically vulnerable members of society. However, this explanation is not necessarily valid because prescription drugs, like antidepressants, are not universally covered by Medicare (Dewa et al., 2005). But individual provinces do provide some prescription drug coverage within their unique insurance schemes and may reduce the burden of cost for people and allow low-income individuals to access this form of care (Dewa et al., 2005). It is possible that material inequality in terms of income may be a less influential factor because of our socialized health care system, whereas inequality in resources like education that contains components like status and information literacy (Starkes et al., 2005; Steele et al., 2007; Roberge et al., 2011), may be more likely to affect the likelihood that individuals will use mental health care in Canada. What explains the relationship between income and mental health care use requires further examination.

My results within the sub-population show that the likelihood of using any of the four forms of mental health care that I considered is not affected by educational attainment or household income. This finding indicates that other social factors, such as social support, health coverage for prescription medications, alcohol consumption, race/ethnicity, sex, age, and province of residence are more important to consider within this sub-group and that SSP does not

provide an adequate framework to understand and model mental health care use among those who have these particular conditions.

These results suggest that when considering social stratification, it is best to refrain from grouping different resources under an umbrella construct like SES. Using SES to plot individuals on a hierarchy from less advantaged to more advantaged and then using this hierarchy to examine how one's position affects outcomes may obfuscate the different relationships occuring among the factors used to build SES. The bundling that usually occurs with respect to SES insinuates that resources, such as education and income, function in a similar manner to provide benefits to those who accumulate them, which, as my results indicate, is not accurate when examining the outcome of mental health care use. As a result, it seems that SSP may not be the best framework to use to examine and understand mental health care use.

Andersen's Behavioural Model (ABM) (Andersen, 1995) may offer a more valid framework of mental health care use, specifically among the sub-population of individuals who experience a mental health condition. This model decentralizes the resources of education and income and treats them as two factors among many within the core categories of factors that the model stipulates (e.g., predisposing, enabling, and need factors). The diversity of the factors included within this model appear to approximate the reality of mental health care use more than SSP and may be the preferable framework for future researchers to use if they are interested in examining this subject matter, albeit only if such researchers adopt a research design that accommodates the conditions of ABM. My research, of course, did not meet these conditions, as I was focused on providing a descriptive understanding of mental health care use and centralized the importance of educational attainment and household income within my analysis, both of which are antithetical to ABM and in-line with SSP.

Policy Implications

The results of my research are representative at the national level in Canada and are not generalizable to any one province. Consequently, the policy implications of my research correspond to decision-making at the national level. In Canada, the federal government is accountable for the "setting and administering of national standards for the health care system through the Canada Health Act; providing funding support for provincial and territorial health care services; supporting the delivery for health care services to specific groups; [and] providing other health-related functions" (Government of Canada, n.d.-a, About Medicare section). Therefore, the degree to which Canada's health care policy conforms with evidence-based information is salient, as such policy will have an impact on Canada's health care system and the ability for Canadians to access mental health services in their provincial jurisdictions.

There has been an ongoing public conversation in Canada about the forms of health care that are covered in health care policy. Most recently, this conversation has revolved around a universal pharmacare plan for Canadians through the introduction of the Pharmacare Act (Bill C-64) on February 29th, 2024 (Government of Canada, 2024; Zimonjic, 2024). This Act is the initial step that the federal government is taking to provide more comprehensive access to important prescription medications, starting out with medications for birth control and the management of diabetes (Government of Canada, 2024). The introduction of this Act and its public interest indicates that the Government of Canada and Canadians are concerned about the public's access to effective treatments for their health conditions.

Though the introduction of the initial incarnation of the Pharmacare Act is laudable, the results of my research and the relevant literature suggest that our public conversation around health care in Canada needs to also focus on how federal policy can promote the use of services

and treatments for mental health care. For instance, at this point the Pharmacare Act does not include prescription medications for mental health care, such as antidepressants, which is an important tool in the arsenal of care providers to manage and treat serious and common mental health conditions like MD and GAD.

Moving beyond prescription medications, our public conversation around health care should also focus on Canadians' use of mental health service providers like psychiatrists, psychologists, and family doctors. Such providers are integral to the proper care of Canadians experiencing mental health conditions, and the federal government should be working with provincial and territorial governments to ensure that Canadians can obtain these valuable services.

My results suggest that use of mental health care, in certain circumstances within the general population, is associated with socioeconomic resources. Income is either unrelated to mental health care use or, when considering the likelihood that a person will use services provided by family doctors or use an antidepressant, favours those with lower incomes, which suggests that cost may be less of an issue than previously thought. While education, on the other hand, is either unrelated to mental health care use or, regarding the use of a psychologist or a family doctor, favours the better educated members of society (though only by a marginal amount), which suggests that this resource ought to be considered alongside cost within policy frameworks aimed at improving access to mental health care.

Because psychologists are not covered care providers within the Canada Health Act or any other federal health policy, it may be beneficial for our federal government to consider whether the services provided by a psychologist should be considered in federal health care policy. Moreover, I think it would be useful to have a public conversation to speculate how

policy decisions could address the slight disadvantage that lesser educated Canadians experience with respect to their likelihood of consulting psychologists and family doctors. Exactly why education is positively related to mental health care use is up for debate; however, it seems likely that the accrual of general and specific skills through the process of post-secondary education may benefit individuals in their ability to recognize mental health issues they are dealing with and better navigate the current health care system to treat such conditions (Starkes et al., 2005). The Government of Canada, and Canadians as a whole, ought to discuss how to address these potentially important qualities of education in relation to mental health care use, in addition to others that may arise, in the pursuit of ensuring that Canadians have the opportunity to use services that can help them overcome their mental health conditions.

Limitations

There are several limitations that must be considered when interpreting the results of my research. First, the sample size of my sub-population was limited and may have lacked the statistical power needed to detect significant relationships among some of the variables included within the analysis. The sub-population only included individuals who experienced MD or GAD in the past 12 months and excludes those who experienced these disorders during their lifetime. These sample restrictions mean that the results of the analyses conducted within this sub-population cannot be generalized to other sub-populations of individuals with differing mental health conditions. Moreover, the results of the analyses cannot be generalized to individuals beyond the ages of 20-64, individuals who are students, or individuals who are institutionalized, enrolled in the Canadian armed forces, living on a reserve or alternative Indigenous community, or living outside the 10 provinces of Canada.

Issues associated with model fit regarding the regression models for the consultation of a psychiatrist and the consultation of a psychologist within the sub-population cannot be ruled out. These two outcome variables contained categories that held a small number of cases, and because the number of independent variables that were included within these models exceeds the recommend limit given the number of cases (Stoltzfus, 2011), these two models may lack validity.

The measurements for the service provider variables tap the consultation of a psychiatrist, a psychologist, and a family doctor for reasons beyond solely experiencing problems related to mental health. This means that I cannot be certain that individuals used these service providers as a way of remedying or treating concerns that arose as a result of poor mental health and/or the experience of a mental health condition, which is ultimately the outcome that my research is most interested in. Furthermore, the measurement for the use of an antidepressant was also limited in its scope, as it only captured use within the past two days. While there are advantages to this measurement – it may better represent regular use of the medication – it may exclude individuals who used antidepressants consistently over the course of a longer time span but stopped before their participation in the CCHS-MHC. The results of my analyses may have varied if a longer time span of antidepressant use was measured.

The measurement of some variables, such as race/ethnicity and income, were also limited in their capacity to capture the diversity of categories that exist within the real world. Race/ethnicity collapsed all racial/ethnic identities into the categories of white and non-white, this means that I was unable to capture how being a member of a particular racial/ethnic group impacted the use of mental health services. Likewise, the top income category was $80,000 or more, which captures a large swath of a very diverse group of high earners (e.g., this category

would contain someone earning $90,000 and someone earning $120,000). Because of this coding strategy, I cannot make claims about how mental health care use varies at the higher income levels.

The CCHS-MHC is a cross-sectional dataset of the non-institutionalized Canadian population living within the nation's 10 provinces during 2012. This type of data does not permit claims of causality because the time-sequence of events cannot be adequately established. However, because my research question did not aim to *explain* the relationship between education, income, and mental health care use, this particular limitation is of little consequence.

An alternative limitation regards the age of the CCHS-MHC. The dataset was complied almost 12 years ago, which means the conclusions of my analysis may not extend to the current day in time. Nonetheless, such analysis adds to the extant literature on my topic of research and provides clarification of the relationships of interest during the early 21st century, which future research can elaborate upon.

The possibility of self-report bias in the CCHS-MHC must not be ignored. Respondents may have misreported or misrepresented certain information during data collection, which may bias the results of my analyses.

As a final limitation, readers should consider the findings regarding educational attainment with the appropriate level of caution. This variable was significantly related to the consultation of a psychologist and the consultation of a family doctor within the general population, and while the p-values associated with these relationships were below the conventional 0.05 level of significance, they were above the more restricted threshold of 0.01. This indicates that while it seems that there are significant relationships among these variables, if

I were to structure the criteria for statistical significance with more frugality, I would conclude that no relationships of the kind discovered exist within the population.

Suggestions for Future Research

Future researchers would do well to examine more recent data that contains variables related to socioeconomic resources, sociodemographic characteristics, and health care use. Statistics Canada recently conducted the *Mental Health and Access to Care Survey (MHACS)* (Statistics Canada, n.d.) in the year 2022, which contains variables of interest that could expand upon the research presented in this study. Further examining the relationships between educational attainment, income, and mental health care use within a recent and large representative sample of Canadians will provide greater clarity regarding whether these socioeconomic resources impact use of care and how these relationships may have changed over the last decade. Additionally, examining the relationship between mental health care use and social support is possible with the MHACS and is worthwhile given the importance of this variable within my models.

Future research should examine how education and income relate to the use of mental health care services and treatments within other sub-populations of individuals who experience conditions beyond MD or GAD. It would be profitable to gain further insights into whether these resources influence care provision among individuals who suffer from more extreme conditions such as schizophrenia and personality disorders.

Examining how socioeconomic resources affect the use of health care services offered by providers excluded from my study may also yield useful information. For example, I did not include social workers or nurses within my analyses. It is possible that differences in income or education may modify the likelihood that an individual will use services provided by these

professionals, or those with different educational or income backgrounds may be more or less likely to visit these service providers as opposed to those included within my analyses.

It is worth considering the use of different forms of measurement for the outcome variables that I included within my analyses. Measuring the use of services for concerns only related to mental health would clear up ambiguity regarding why a given individual would have used a particular provider for health care purposes and offer a clearer picture of the relationship between income, education, and the use of mental health care.

Additionally, future research should focus on why educational attainment and income are related to mental health care use. My results do not tap the 'why' due to research design and data limitations. Understanding the mechanisms that cause the slight advantage that individuals with greater education have regarding their likelihood of using services provided by psychologists and family doctors and the decreased use of a family doctor or antidepressants among more wealthy individuals, would be very informative.

Conclusion

I used a social stratification perspective to investigate the research question: What is the relationship between educational attainment, income, and the likelihood that Canadian adults will use mental health care services and treatments? I examined this research question using logistic regression models that illustrate the relationship between education, income, and the consultation of psychiatrist, a psychologist, a family doctor, and the use of an antidepressant, while controlling for social support, alcohol use, health coverage, race/ethnicity, age, sex, marital status, work status, place of residence, province of residence, and immigrant status. Analyses were conducted in both the general population of non-student Canadian adults between the ages

of 20-64 and a sub-population of non-student Canadian adults between the ages of 20-64 who experienced MD or GAD in the past 12 months.

My results show that when an individual in the general population has acquired a post-secondary level of education, they are slightly more likely to consult a psychologist or a family doctor, but educational attainment is entirely unrelated from the likelihood of consulting a psychiatrist or using an antidepressant within the general population. These results were not replicated in the sub-population, as education was unrelated to any of these forms of health care among those who experienced a mental health condition in the past 12 months.

In the general population, achieving a greater income was linked to a lower likelihood of consulting a family doctor or using an antidepressant, but income was disconnected from the likelihood that an individual would consult either a psychiatrist or a psychologist. These results did not occur in the sub-population, as income was not linked to any form of mental health care among individuals who experienced MD or GAD.

My models are both consistent and inconsistent with the extant literature and provide interesting contextualizing findings to this body of scholarship. The relationships between education, income, and the use of mental health care deserves further research within the Canadian adult population. Beyond educational attainment and household income, factors such as social support, race/ethnicity, sex, age, health coverage for prescription medications, immigrant status, and work status were shown to have significant relationships with the different forms of mental health care. These factors should be investigated further to disentangle the reasons why they are related to mental health care services and treatments.

I use my results to broadly discuss health care policy within Canada and how our public conversation around health care policy should expand to incorporate various aspects of mental

health care. I recommend that our public conversation around health care should contend with how our federal health care policy could address the use of medications used to treat mental health conditions, like antidepressants, as well as the use of service providers like psychiatrists, psychologists, and family doctors.

This study offers findings that help us further understand the relationships between socioeconomic resources and mental heath care use in Canada, while underscoring the complexity of these relationships and our continued uncertainty about how they function in the real world. Despite such uncertainty, the current knowledge that we have on these relationships suggest that they should be considered by decision-makers who have the power to craft policy that will affect Canadian's access to health care. My results offer academic and practical contributions through adding to the literature that contends with the connection between social factors and mental health care use and by providing evidence-based recommendations to such decision-makers.

Notes

[1] The CCHS 2012 contained a variable that indicated whether a respondent used any medication in the 12 months preceding their participation in the survey for reasons related mental health, emotions, alcohol or drugs (Statistics Canada, 2014a). I favoured the antidepressant use variable over this more general indicator of medication use, because antidepressants are commonly prescribed for the mental health conditions I examined – although individuals with other conditions do use antidepressants (Beck et al., 2005). Focusing on the specific category of antidepressant use seemed more appropriate to me because the results associated with this variable are actionable. In other words, we can see whether there are inequalities in the use of this treatment for the conditions I analyzed and then use this information to create informed

policy that could reduce some of this inequality. Conversely, the more general medication variable does not offer this possibility, as inequalities that may be found in the use of *any* medication cannot lead to policy that targets specific types of important medications. There are of course still issues with the antidepressant use variable (*see limitations*) that limit its ability to inform policy, but this specific variable seemed more apt to fill this role than the more general medication variable.

[2] A possible reason for the link between health insurance for prescription medications and the use of service providers could be that health insurance is a proxy for differences in health seeking behaviours (Dewa et al. 2005). In other words, individuals who have health insurance for prescription medications may pay greater attention to their health and be more likely to act on perceived issues related to their health (Dewa et al., 2005), which may explain why I found that Canadians with health insurance for prescription medications were more likely to consult service providers.

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Appendix: Additional Tables

Table 4: Percentage of Canadian Adults Who Consulted a Psychiatrist by Their Level of Educational Attainment and Household Income

Independent Variable	Mean (Weighted)	P-Value*
Educational Attainment		
Less than Secondary School	3.14	
Secondary School Graduate	1.55	
Some Post Secondary School	2.57	
Post Secondary School Graduate	2.26	
		$p = 0.08$ ($\chi^2 = 11.22$)
Household Income		
No Income or Less than $20,000	7.79	
$20,000 - $39,999	4.85	
$40,000 - $59,999	2.98	
$60,000 - $79,999	1.84	
$80,000 or More	1.46	
		$p < 0.05$ ($\chi^2 = 136.48$)

*The p-values are derived from a Chi-Squared test of significance between each respective independent variable and the dependent variable: consultation of a psychiatrist. Any p-value below 0.05 is considered significant. The Chi-Squared values (χ^2) are shown in parentheses.
SOURCE: 2012 Canadian Community Health Survey data, N = 14,568

Table 5: Percentage of Canadian Adults Who Consulted a Psychologist by Their Level of Educational Attainment and Household Income

Independent Variable	Mean (Weighted)	P-Value*
Educational Attainment		
Less than Secondary School	1.85	
Secondary School Graduate	2.05	
Some Post Secondary School	3.44	
Post Secondary School Graduate	2.66	
		$p = 0.21$ ($\chi^2 = 8.23$)
Household Income		
No Income or Less than $20,000	5.4	
$20,000 - $39,999	3.23	
$40,000 - $59,999	3.21	
$60,000 - $79,999	2.34	
$80,000 or More	2.08	
		$p < 0.05$ ($\chi^2 = 30.38$)

*The p-values are derived from a Chi-Squared test of significance between each respective independent variable and the dependent variable: consultation of a psychologist. Any p-value below 0.05 is considered significant. The Chi-Squared values (χ^2) are shown in parentheses.
SOURCE: 2012 Canadian Community Health Survey data, N = 14,568

Table 6: Percentage of Canadian Adults Who Consulted a Family Doctor by Their Level of Educational Attainment and Household Income

Independent Variable	Mean (Weighted)	P-Value*
Educational Attainment		
Less than Secondary School	7.41	
Secondary School Graduate	6.39	
Some Post Secondary School	8.30	
Post Secondary School Graduate	7.09	
		$p = 0.59$ ($\chi^2 = 3.62$)
Household Income		
No Income or Less than $20,000	18.03	
$20,000 - $39,999	10.83	
$40,000 - $59,999	8.45	
$60,000 - $79,999	7.23	
$80,000 or More	5.38	
		$p < 0.05$ ($\chi^2 = 158.71$)

*The p-values are derived from a Chi-Squared test of significance between each respective independent variable and the dependent variable: consultation of a family doctor. Any p-value below 0.05 is considered significant. The Chi-Squared values (χ^2) are shown in parentheses.
SOURCE: 2012 Canadian Community Health Survey data, N = 14,568

Table 7: Percentage of Canadian Adults Who Used an Antidepressant by Their Level of Educational Attainment and Household Income

Independent Variable	Mean (Weighted)	P-Value*
Educational Attainment		
Less than Secondary School	7.48	
Secondary School Graduate	5.33	
Some Post Secondary School	8.67	
Post Secondary School Graduate	6.23	
		$p = 0.13$ ($\chi^2 = 14.27$)
Household Income		
No Income or Less than $20,000	15.53	
$20,000 - $39,999	7.79	
$40,000 - $59,999	6.07	
$60,000 - $79,999	6.53	
$80,000 or More	5.57	
		$p < 0.05$ ($\chi^2 = 83.50$)

*The p-values are derived from a Chi-Squared test of significance between each respective independent variable and the dependent variable: use of an antidepressant. Any p-value below 0.05 is considered significant. The Chi-Squared values (χ^2) are shown in parentheses.
SOURCE: 2012 Canadian Community Health Survey data, N = 14,568

Table 8: Percentage of Canadian Adults Who Consulted a Psychiatrist by Their Level of Educational Attainment and Household Income

Independent Variable	Mean (Weighted)	P-Value*
Educational Attainment		
Less than Secondary School	21.80	
Secondary School Graduate	14.22	
Some Post Secondary School	15.73	
Post Secondary School Graduate	21.92	
		$p = 0.37$ ($\chi^2 = 6.84$)
Household Income		
No Income or Less than $20,000	22.58	
$20,000 - $39,999	23.88	
$40,000 - $59,999	23.65	
$60,000 - $79,999	18.07	
$80,000 or More	16.66	
		$p = 0.54$ ($\chi^2 = 7.30$)

*The p-values are derived from a Chi-Squared test of significance between each respective independent variable and the dependent variable: consultation of a psychiatrist. Any p-value below 0.05 is considered significant. The Chi-Squared values (χ^2) are shown in parentheses.
SOURCE: 2012 Canadian Community Health Survey data, N = 1,143

Table 9: Percentage of Canadian Adults Who Consulted a Psychologist by Their Level of Educational Attainment and Household Income

Independent Variable	Mean (Weighted)	P-Value*
Educational Attainment		
Less than Secondary School	16.57	
Secondary School Graduate	14.61	
Some Post Secondary School	11.23	
Post Secondary School Graduate	21.43	
		$p = 0.31$ ($\chi^2 = 8.81$)
Household Income		
No Income or Less than $20,000	13.11	
$20,000 - $39,999	14.34	
$40,000 - $59,999	25.87	
$60,000 - $79,999	17.11	
$80,000 or More	19.54	
		$p = 0.30$ ($\chi^2 = 13.27$)

*The p-values are derived from a Chi-Squared test of significance between each respective independent variable and the dependent variable: consultation of a psychologist. Any p-value below 0.05 is considered significant. The Chi-Squared values (χ^2) are shown in parentheses.
SOURCE: 2012 Canadian Community Health Survey data, N = 1,143

Table 10: Percentage of Canadian Adults Who Consulted a Family Doctor by Their Level of Educational Attainment and Household Income

Independent Variable	Mean (Weighted)	P-Value*
Educational Attainment		
Less than Secondary School	49.00	
Secondary School Graduate	39.57	
Some Post Secondary School	35.81	
Post Secondary School Graduate	50.14	
		$p = 0.17$ ($\chi^2 = 11.21$)
Household Income		
No Income or Less than $20,000	58.47	
$20,000 - $39,999	48.89	
$40,000 - $59,999	53.1	
$60,000 - $79,999	47.72	
$80,000 or More	38.9	
		$p = 0.08$ ($\chi^2 = 20.11$)

*The p-values are derived from a Chi-Squared test of significance between each respective independent variable and the dependent variable: consultation of a family doctor. Any p-value below 0.05 is considered significant. The Chi-Squared values (χ^2) are shown in parentheses.
SOURCE: 2012 Canadian Community Health Survey data, N = 1,143

Table 11: Percentage of Canadian Adults Who Used an Antidepressant by Their Level of Educational Attainment and Household Income

Independent Variable	Mean (Weighted)	P-Value*
Educational Attainment		
Less than Secondary School	32.25	
Secondary School Graduate	25.46	
Some Post Secondary School	32.35	
Post Secondary School Graduate	38.57	
		$p = 0.13$ ($\chi^2 = 12.56$)
Household Income		
No Income or Less than $20,000	50.01	
$20,000 - $39,999	33.27	
$40,000 - $59,999	37.23	
$60,000 - $79,999	38.89	
$80,000 or More	27.6	
		$p = 0.06$ ($\chi^2 = 23.02$)

*The p-values are derived from a Chi-Squared test of significance between each respective independent variable and the dependent variable: use of an antidepressant. Any p-value below 0.05 is considered significant. The Chi-Squared values (χ^2) are shown in parentheses.
SOURCE: 2012 Canadian Community Health Survey data, N = 1,143

Table 14: Odds Ratios of Mental Health Care Use for Canadian Adults

	Model 1 (Psychiatrist)	Model 2 (Psychologist)	Model 3 (Family Doctor)	Model 4 (Antidepressant Use)
	OR	OR	OR	OR
Educational Attainment (Ref: Less than HS)				
Secondary School Graduate	.638	1.310	.969	.752
Some Post Secondary School	.965	1.756	1.278	1.168
Post Secondary School Graduate	1.359	1.849*	1.458*	1.043
Household Income (Ref: Less than $20,000)				
$20,000 - $39,999	.989	.683	.707	.580*
$40,000 - $59,999	.949	.806	.661*	.540*
$60,000 - $79,999	.687	.629	.586*	.607*
$80,000 or More	.608	.553	.417***	.507**
Social Support (Ref: First Quintile)				
Second Quintile	.294***	.304*	.289***	.459**
Third Quintile	.412**	.537	.404***	.590*
Fourth Quintile	.273***	.464	.266***	.494**
Fifth Quintile	.228***	.247**	.182***	.259***
Health Coverage (Ref: Has Health Insurance)				
Does Not Have Health Insurance	.507**	.707	.561***	.543***
Alcohol Use (Ref: Does Not Drink)				
Light Drinker	1.048	.955	1.208	1.200
Moderate Drinker	.816	1.044	1.017	.838
Heavy Drinker	1.146	1.026	1.416	1.132
Race/Ethnicity (Ref: White)				
Non-White	3.549*	.597	.644**	.556***
Age (Categorical) (Ref: 20-24 Years)				
25-29 Years	.691	1.045	N/A	1.344
30-34 Years	.947	2.077	N/A	3.034**
35-39 Years	1.120	1.567	N/A	2.958***
40-44 Years	.569	1.037	N/A	2.596**
45-49 Years	.867	1.157	N/A	3.755***
50-54 Years	.346	.716	N/A	2.444**
55-59 Years	.770	.525	N/A	3.048***
60-64 Years	.286*	.481	N/A	1.722*
Age (Continuous)				
Age in Years	N/A	N/A	.994	N/A
Sex (Ref: Female)				
Male	.702	.442***	.509***	.437***

Marital Status (Ref: Married or Common Law)				
Not Married or Common Law	2.151***	1.611*	1.192	1.189
Place of Residence (Ref: Urban)				
Rural	.858	.880	.893	1.036
Working Status (Ref: Employed)				
Not Employed	3.549***	1.268	1.798***	1.700***
Province of Residence (Ref: Prairie Provinces)				
British Columbia	1.460	.744	1.003	1.033
Ontario	1.066	.799	.900	.834
Atlantic Provinces	.687	.877	.788	.870
Quebec	.881	1.676**	.512***	.719
Immigrant Status (Ref: Non-Immigrant)				
Immigrant	.429***	.422**	.416***	.319***
Pseudo R-Squared	.15	.1	.1	.11

*** p<.001, ** p<.01, * p<.05

NOTES: Presented here are the results of four logistic regression models predicting different forms of mental health care: the consultation of a psychiatrist (model 1), the consultation of a psychologist (model 2), the consultation of a family doctor (model 3), and the use of antidepressant medication (model 4). Odds ratios (OR) are the change in the odds that a given dependent variable will occur per unit change in an independent variable.
SOURCE: 2012 Canadian Community Health Survey data, N = 14,568

Table 15: Odds Ratios of Mental Health Care Use for Canadian Adults Who Experienced Major Depression or Generalized Anxiety Disorder

	Model 1 (Psychiatrist)	Model 2 (Psychologist)	Model 3 (Family Doctor)	Model 4 (Antidepressant Use)
	OR	OR	OR	OR
Educational Attainment (Ref: Less than HS)				
Secondary School Graduate	.678	.888	.683	.682
Some Post Secondary School	.771	.662	.635	1.118
Post Secondary School Graduate	1.412	1.152	1.189	1.392
Household Income (Ref: Less than $20,000)				
$20,000 - $39,999	1.360	1.108	.725	.549
$40,000 - $59,999	1.594	2.012	.832	.594
$60,000 - $79,999	1.363	1.501	.754	.863
$80,000 or More	1.359	1.721	.512	.497
Social Support (Ref: First Quintile)				
Second Quintile	NA	.712	.396**	.411**
Third Quintile	NA	.996	.709	.763
Fourth Quintile	NA	2.042	.670	1.279
Fifth Quintile	NA	.878	.773	.633
Social Support (Continuous)				
Social Provisions Scale	.971	NA	NA	NA
Health Coverage (Ref: Has Health Insurance)				
Does Not Have Health Insurance	NA	NA	.570*	.399***

Alcohol Use (Ref: Does Not Drink)				
Light Drinker	1.093	.429*	.831	.786
Moderate Drinker	.971	.405*	.727	.541
Heavy Drinker	.412	.374*	.773	.631
Race/Ethnicity (Ref: White)				
Non-White	.560	.337*	.536*	.428**
Age (Continuous)				
Age in Years	1.000	.981	1.009	1.020*
Sex (Ref: Female)				
Male	1.079	.608*	.676*	.741
Marital Status (Ref: Married or Common Law)				
Not Married or Common Law	1.155	1.476	.953	1.108
Place of Residence (Ref: Urban)				
Rural	.867	1.175	.970	1.111
Working Status (Ref: Employed)				
Not Employed	2.507**	.792	1.443	1.577
Province of Residence (Ref: Atlantic Provinces)				
British Columbia	2.398*	1.490	2.047*	1.025
Ontario	1.826	1.284	1.475	.884
Prairie Provinces	1.720	.805	1.399	.712
Quebec	1.513	3.217***	.861	.478*
Immigrant Status (Ref: Non-Immigrant)				
Immigrant	.855	1.166	.560	.619
Pseudo R-Squared	.06	.11	.09	.13

*** p<.001, ** p<.01, * p<.05

NOTES: Presented here are the results of four logistic regression models predicting different forms of mental health care: the consultation of a psychiatrist (model 1), the consultation of a psychologist (model 2), the consultation of a family doctor (model 3), and the use of antidepressant medication (model 4). Odds ratios (OR) are the change in the odds that a given dependent variable will occur per unit change in an independent variable. Please note that this table shows results for the sub-sample of Canadian adults who are non-students between the ages of 20-64 and have experienced either an episode of major depression or generalized anxiety disorder.
SOURCE: 2012 Canadian Community Health Survey data, N = 1,143