The Role of Socioeconomic Status and Social Determinants in Predicting Accessibility and Barriers to Mental Health Services in the Canadian General Population

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Abstract

There is a tremendous discrepancy between the number of people likely meeting criteria for a mental disorder or substance dependence in Canada and the number of people actually receiving mental health or substance dependence treatment. Thus, it is important to examine what facilitates entrance into the mental health care system and what prevents people from receiving the treatment they need. Mixed findings exist as to whether socioeconomic status (SES) and other social determinants of health play a role in receiving treatment in Canada. However, due to several methodological issues with previous studies that have examined this issue, three studies were designed to re-examine and add to the literature in this area by investigating: (1) whether SES (i.e., income and education) and other social determinants as well as psychological distress predict the number of services received by any professional for any mental disorder or substance dependence, as well as predict overall satisfaction with the services received (2) the psychometric validity and reliability of the 3-factor model proposed by Statistics Canada to measure barriers due to accessibility, acceptability and availability, and (3) whether SES, other social determinants and psychological distress predict specific barriers to receiving mental health treatment for an unmet need. All data were obtained from the Canadian Community Health Survey, cycle 1.2, Mental Health and Wellbeing. In Study 1, the SES/social determinants model predicted the number of services received for both medication and psychotherapy. Out-of-pocket spending, was the strongest predictor of the number of consultations from any provider, however it was also inversely related to overall satisfaction with services. Higher levels of distress predicted greater dissatisfaction with services received. Study 2 revealed that the three factor model of accessibility, acceptability and availability was invalid and unreliable as a measure of barriers to mental health services. It is, therefore, recommended that each specific barrier be

treated as an independent causal indicator of an index measuring overall accessibility to mental health services. Finally, in Study 3, when examining each barrier independently, both education and income played important roles in recognizing there was a problem, seeking services, and actually accessing the services needed. Other social determinants also played important roles which differed depending on the type of barrier being examined. The results of the three dissertation studies indicate a clear relation between SES, other social determinants and psychological distress, and accessibility and barriers to mental health services in Canada for those suffering any mental disorder or issue related to substance dependence. The findings have significant implications in terms of potential policy implications, recommendations for the design of future national level surveys, and recommendations for future research on this topic.

Statement of Co-Authorship

The three manuscripts included in this dissertation were prepared in collaboration with my dissertation supervisor. I was primary author and Dr. John Hunsley was the secondary author for the first manuscript entitled "The Role of Socioeconomic Status and Social Determinants in Predicting Access to Mental Health Care in Canada," the second manuscript entitled "Evaluating the Measurement of Mental Health Service Accessibility, Acceptability, and Availability in the Canadian Community Health Survey," and the third manuscript entitled "The Role of Socioeconomic Status and Social Determinants in Predicting Barriers to Mental Health Care in Canada." As the primary author on all manuscripts, I was responsible for the conceptualization of the research question and methods, planning and execution of statistical analyses, and preparation of manuscripts. Dr. Hunsley provided guidance and assistance in all aspects of the project, especially in the refinement of the research methods, statistical procedures, and editing of the manuscripts.

Publication Statement

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Thank you.

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Chapter 1

The Role of Socioeconomic Status and Social Determinants in Predicting Accessibility and Barriers to Mental Health Services in the Canadian General Population

Introduction

With the implementation of the Canada Health Act (CHA) in 1984, Canada has a universal health care system that guarantees equal access to all health services deemed to be "necessary" and that are provided in a hospital, by physicians, or by surgical dentists (Canada Health Act, s. 2). Therefore, mental health services received in a hospital or from a physician are covered by the CHA, but services provided in the private sectors from providers such as psychologists, social workers, counsellors, or non-physician psychotherapists are not. As a result, clients must pay directly for mental health services received from these professionals, which may serve as a disincentive or barrier to access services from these providers. Additionally, with the exception of medication provided within a hospital, medication for the treatment of mental disorders is not covered by the CHA or by provincial health care systems. All provinces, however, have chosen to independently develop prescription drug benefit plans, predominantly to help seniors, individuals and families receiving social assistance (Dewa, Hoch & Steele, 2005). However, when Dewa et al. utilized the Canadian Community Health Survey (CCHS) cycle 1.2 (n = 33,000) to examine how well these provincial drug plans were working, they found that insurance coverage was significantly helping those with chronic physical illness, but not mental disorders. The authors found that most publically supported drug benefit plans targeted individuals with a chronic physical disorder and that there was no significant association between the presence of an affective or anxiety disorder and the presence of prescription drug coverage (Dewa et al., 2005). The authors concluded that, in Canada, provincial drug plans are

not significantly helping those with mental disorders obtain prescription psychotropic medications. Additionally, they found that despite the provincial drug plans, more than a quarter of the population reported being uninsured and they were most likely to be found in the lowest income groups (Dewa et al., 2005).

It is estimated that approximately two-thirds of Canadians with a mental disorder do not receive mental health services (Tempier, et al., 2009). Given the enormous personal and economic costs associated with mental disorders (Hunsley, 2003), the extent to which these disorders go untreated is a major societal problem. However, the reasons for limited treatment of these disorders are not well understood. One important line of research has focused on the role stigma may play in seeking, or avoiding, mental health services (e.g., Tucker et al., 2013); another research focus has been on how issues related to costs and the complexity of navigating the mental health system in Canada also serve as barriers to receiving treatment (e.g., Steele, Dewa, & Lee, 2007). Given that the primary objective 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, s. 3) it is important to examine whether financial or other barriers are impeding access to mental health services. The first goal of this dissertation is to examine who is receiving mental health services in Canada and whether socioeconomic factors (i.e., education and income level), along with other social determinants (i.e., ethnicity, rural/urban location, gender, age) and psychological distress, influence who receives services. The second goal of this dissertation is to examine the types of unmet need regarding mental health care that exist among Canadians, the barriers that prevent people from addressing these unmet needs, and the extent to which socioeconomic status (SES) may affect the nature of these barriers.

In order to examine the relationship between SES and other social determinants, as well as psychological distress, and how they relate to accessibility and barriers to mental health services, it is important to define these constructs. Given the wide variety of ways that these constructs have been defined in the literature, the following will review and define socioeconomic status (SES), SES and mental health, social determinants, psychological distress and their role in accessing mental health services, as well as the role of social determinants, psychological distress, and SES as barriers to mental health services.

Socioeconomic Status

It is well-known that SES, has a profound influence on health outcomes and the construct is widely used in the social science and social epidemiological literature, both as an important variable to be controlled for in examining relations between other variables and health outcomes, and, to a somewhat lesser extent, as a main predictor of health outcomes (cf. Braveman et al., 2005; Shavers, 2007). SES can, therefore be viewed as a social determinant of health, a measure of social advantage/disadvantage (Braveman & Gruskin, 2003) and a construct in its own right. A major problem, however, is how this construct is defined and interpreted within the literature. When investigating the impact of SES on health outcomes, Kaplan (1999) argued that one must consider the role of the social environment. There are many levels of the social environment that range from the individual to social and economic policies which affect institutions. He discussed this social environment as a dynamic, multi-level phenomenon, existing throughout the life course in which feedback exists between levels. The challenge in examining the impact of SES on health outcomes, then, becomes one of choosing variables that account for these different levels of the social environment. Based on this argument, Shavers (2007) discussed two basic

approaches to the study of SES: (1) the compositional approach, and (2) the contextual approach, each of which has its own strengths and limitations.

The compositional approach places a focus on individual level characteristics of SES and is generally defined using one or more of the following: (1) education (e.g., years of education completed, highest level completed, credentials earned), (2) income (e.g., individual annual income, annual household income, family income) , and (3) occupation (e.g., employment status, specific occupational group, aggregate occupational groups). As discussed by Shavers (2007), education is one of the most fundamental components of SES, and one of the most widely used in SES research (often as a proxy for income, cf. Braveman, 2005), as it influences future employment, earning potential, and often precedes many disorders or detrimental health effects, thereby reducing the likelihood of reverse causation effects. Education is also the most likely of all SES indicators to capture aspects of lifestyle and behaviour of individuals (Shavers, 2007). Several possibilities exist with respect to how education may impact health including developing more sophisticated information processing and critical thinking skills, allowing for greater ease in navigating bureaucracies and institutions, and enhancing the ability to effectively communicate with health professionals (Shavers, 2007). It may be that education provides the skills to successfully seek out needed information on illness and available treatments when required.

Income is generally considered to be the true measure of SES in research conducted in the United States (Braveman, 2005). It is believed that income provides the means with which to pay for healthcare and better nutrition, and is sometimes (arguably incorrectly) associated with wealth and prestige (Braveman, 2005; Shavers 2007). As discussed by Shavers, there are two main views regarding income and health outcomes; one is that it is a linear relation, and the other

is that, although the relation exists at all levels, differences in income within lower-income groups appear to result in greater effects on health outcome than differences in income amongst those within higher income levels. Despite the recognition that SES is a complex issue and that it may exert different types of influence, Braveman et al. (2005) raised the concern that most studies of SES treat this variable (and other SES variables) categorically, often with few categories, thereby obscuring the potential to determine effects that may occur across the entire socioeconomic spectrum.

Occupational status is considered the third component of the compositional approach to measuring SES, as it is believed to have a role in where individuals exist within a social structure, which in turn influences their access to resources, as well as exposures to psychological and physical stressors with respect to occupation and lifestyle (Shavers, 2007). It is most commonly used as a measure of SES in research based in Western Europe, however it is less frequently used in research in the United States (Braveman, 2005). Research examining occupation in Western European countries often examine this variable by means of manual versus non-manual labor or graded hierarchies according to prestige, skills, social influence and/or power (Braveman, 2005). As discussed by Braveman when reviewing the literature based on five nationally or state-wide data sets in the United States (i.e., the multistate Behavioral Risk Factor Surveillance System, 2004; the National Health Interview Survey, 1989-1984, and 1997; the Third National Health and Nutrition Examination Survey, 1988-1994, the National Longitudinal Study of Adolescent Health, 1994-1995, and the Maternal and Infant Health Assessment, 1999-2004), measures of occupation were rarely included because occupational data does not appear to be as meaningful as other SES measures. This is because the categories often include workers of diverse prestige, skills, power and earnings. Based on the current state of

surveys conducted in North America, it appears that occupation may not be the most meaningful way to examine SES, unless surveys are able to better gather such information in a way more consistent with those conducted in western Europe (i.e., able to collect and/or organize the data in a way that reflects power, prestige or skills considered important and socially influential in North American Society).

Although income and education are two traditional measures of SES and may be correlated with similar measures, they are not interchangeable (Braveman et al., 2005; Shavers, 2007). Braveman et al. (2005) cautioned against the common practice of utilizing education as a proxy for income, as the correlations between the two variables are of only moderate size (i.e., generally below $r = .50$) and income can vary amongst different levels of education and across ethnic, sex, and age groups. Finally, Braveman et al. (2005) examined 6 models utilized in the National Health Interview Survey (NHIS) data which included ethnicity, age, and sex in addition to either education alone, or education plus income to examine ethnic differences in self-rated health among adults aged 18-24. The results significantly changed when both income and education were included in the models. Additionally, when examining health indicators in the Maternal and Infant Health Assessment (MIHA) data set, for 20 of the 23 indicators, Braveman et al. found the model fit was significantly better when both income and education were included.

The contextual approach to measuring SES generally involves geographical information and frequently utilizes multi-level analyses in order to examine how the context in which one lives contributes to health. The measures that are used are often neighbourhoods (e.g., ZIP codes, census tracts, census blocks) and geographic areas (e.g., counties, regions and states) (Shavers, 2007). Many critiques of this approach include a focus on the importance of how recently the

data were collected, as neighbourhoods are constantly developing and changing, as well as the fact that the measures often do not correlate well with individual measures of SES discussed in the compositional approach (Shavers, 2007). For example, Greenwald, Polissar, Borgatta, and McCorkle (1994) investigated how well utilizing aggregate data from neighbourhoods as a proxy for income, education, and race in census data would correlate with these individual measures. They found that the correlation between imputed and individual level data was .22-.33 for income, .28-.40 for education, and .53-.67 for ethnicity. The authors also found statistically significant relations between the individual variables of SES (i.e., income, education, ethnicity) and survival with a sample of 536 people diagnosed with cancer; however, there was not a significant relationship with the aggregate SES (i.e., neighbourhoods) data.

Based on all of the considerations described above, as the purpose of this dissertation is to examine whether SES influences the ability of those with a likely diagnosis of a mental disorder or substance dependence to receive treatment, it was decided that a compositional approach to SES would be taken. Given the concerns regarding the use of occupational status as a useful predictor of SES outside of the Western European survey data (cf. Braveman et al., 2005), as well as a meta-analysis and systematic review suggesting it is not a strong predictor of mental health (Fryers et al., 2003; Reiss, 2013), it was decided that, for the purpose of this dissertation, occupational status will not be included in how SES is defined. Socioeconomic status will be defined as level of household income and level of education of the respondent for all studies. Additionally, given the critique of Braveman et al. (2005) regarding the common categorical usage of these variables, they will both be treated continuously in order to maximize power and observe possible linear trends across the spectrum of these variables.

SES and Mental Health

Socioeconomic status, measured in a variety of ways, also appears to be strongly related to the presence of a mental disorder as demonstrated repeatedly across many countries (e.g., Bassuk, Buckner, Perloff, & Bassuk, 1998; Bijl, Ravelli, & van Zessen; Giordano & Lindstrom, 2011; Jokela, Batty, Vahtera, Elovainio, & Kivimaki, 2013; Kosidou et al., 2011; Reiss, 2013). However, with respect to mental health, the specific impact of income and education individually is somewhat less clear with some studies suggesting that income may be the strongest predictor of the presence of a disorder. For example, Starkes, Poulin, and Kisley (2005) found that income was a greater predictor of having a mental disorder, whereas education played a greater role in the likelihood of receiving treatment. Likewise, when examining change in psychological health over time in the British Household Panel Survey (BHPS) in 2003, 2005, and 2007, Giordiano and Lindstrom (2011) found that income was the only SES variable that remained significant in predicting better psychological health over time. Finally, Basskuk et al. (1998), when comparing homeless mothers (n = 220) and housed mothers receiving public assistance (n = 216) with all other women in the National Comorbidity Survey (n = 2,930), found that rates of posttraumatic stress disorder, major depression, and substance use disorders were over-represented in the homeless and housed mothers receiving public assistance relative to the full sample.

On the other hand, studies have also found that both income and education may play a role in predicting the presence of a mental disorder. For example, Kosidou et al. (2011) examined the longitudinal, population-based Stockholm Public Health Cohort, focusing on three levels of distress: distressed (n = 17,110), severely distressed (n = 19,862), and depressed (n = 21,821). When examining the SES gradient (i.e., education, income, and occupational class), they found that occupational class had little or no impact on the risk of psychological distress regardless of severity or gender, however; it was strongly and inversely associated with the onset

of depression in younger men. Women with the highest disposable income were less likely to suffer from depression than other groups. Among men, only those with the lowest disposable income were at increased risk for depression. Relative risk for depression was lower in older individuals with a low level of education, regardless of gender, but low education in younger women predicted an increased risk for depression. Likewise, Jokela et al. (2013) examined the data from respondents with common mental disorders (i.e. anxiety and depression) in the BHPS (n = 28,054) and found higher income and higher occupational status was associated with a lower risk of a disorder. Higher education was also associated with a lower risk of disorder, except in the highest education quintile. In a meta-analysis examining the effects of SES on depression, Lorant et al. (2003) examined 56 studies, primarily from North America and Europe, 37 of which used education as the independent variable and 23 of which used income. The authors found a dose response relation for each variable and the level of depressive symptoms, however they were not identical. For each additional year of education, the log odds ratio of being depressed decreased by 3%. For every 1% increase in relative ranking of income, there was a .74% log odds ratio of being depressed. Although the lowest SES group had 1.24 times greater odds of experiencing a new depressive episode, the association between SES and depression was not limited to the lowest group, but persisted throughout the entire social stratum.

In a systematic review, Fryers, Melzer, and Jenkins (2003) examined SES and its association with common mental disorders (i.e., depression and anxiety). In addition to examining income and education, they examined "occupational social class" and found it to be the weakest predictor (3 of 6 studies showed no association with suffering from a "common mental disorder") of the presence of a disorder. Four out of five studies found education to be associated with a common mental disorder, and 6 out of 6 studies found income to be associated

with the presence of a disorder. The authors concluded that income and education (as well as assets and unemployment) may interact to produce substantial disadvantages for people, leading to an increased risk of developing either depression or anxiety. Finally, in a systematic review of SES inequalities and their impact on mental health problems in children and adolescents, utilizing 52 studies from a total of 23 countries, Reiss (2013) found that 11 cross-sectional studies and 5 longitudinal studies showed a negative impact of low financial status on children's mental health. She additionally found that household income and low parental education had a greater impact on children's' and adolescent's mental health problems than did parental unemployment or occupational status. The presence of financial problems appeared to be strongly associated with the onset of mental health problems, but had no impact on the course or severity. In contrast, parental education negatively predicted the persistence and severity of mental health problems, but not the onset of mental health problems. Additionally, higher parental education appeared to be associated with better access to resources including mental health treatment.

In the Canadian population, Caron and Liu (2010) examined the prevalence of psychological distress and mental disorders based on high and low income in the Canadian Community Health Survey (CCHS 1.2; n = 34,984). They found that, for both the presence of psychological distress and mental disorders, the rates were significantly higher (i.e., by 50%) in low-income populations than in non-low-income populations and that these differences remained consistent in most of the sociodemographic strata. Likewise Orpana, Lemyre, and Gravel (2009) examined data from the first 12 years of the longitudinal National Population Health Survey (1994/1995-2006/2007; n = 10,948) and found that men with lower income were 1.58 times as likely as higher-income men to become distressed, even when age, urban/rural location,

immigrant, parental and labour force status was controlled. They found that women with lower incomes were at a 25% greater risk of becoming distressed than women with higher incomes.

Social Determinants and Accessibility to Mental Health Services

In light of the Canada Health Act, SES is of primary interest in this dissertation and will receive special attention. It is likely, however, that accessibility to mental health services is more complex than simply income and education. Other social determinants of health as well as psychological distress are important to consider and SES likely impacts and/or interacts with other social characteristics such as ethnicity and gender (amongst others) to produce different effects across groups (Braveman et al., 2005). Therefore, additional social determinants of health and psychological distress need to be considered.

The role of social determinants. There is a growing interest and realization that there is more to health and well-being than simply the presence or absence of a disorder. Focusing strictly on treatment outcome research alone does not capture the full social environment and its impact on the health of individuals (e.g., Kaplan, 1999). As discussed by Braveman and Gruskin (2003), in order for members of a society to have equal opportunity at experiencing health, there must be an absence of social disparity that goes beyond health status alone, but must also include social determinants. Social determinants include the role of conditions in which people are born, grow, live, work, and age and how these conditions affect health and health outcomes (WHO, 2014). Additionally, the study of social determinants includes how these social conditions are affected by distributions of money, power, and resources (WHO, 2014). There is no definitive list of social determinants, although factors such as gender, age, ethnicity, work environment, poverty, and access to universal health care are some common examples (e.g., Marmot, 2005; Marmot, Friel, Bell, Houweling & Taylor, 2008).

Although attention and emphasis is now being placed on the social determinants of health (e.g., WHO, 2014), considerably less attention has been placed on the social determinants of mental health (Todman, 2011). As discussed by Todman, the role of social conditions (i.e., where we are born, grow, live, work, and age) and the broader social, political and economic conditions that impact mental health are often ignored in favour of a focus on the individual, family, and/or community. In an effort to address this, the Institute of Social Exclusion (ISE) launched a Mental Health Impact Assessment (MHIA) to expand the field of mental health research by developing a concept of "population mental health." The hope is that mental health professionals will play a more active role in shaping the social conditions that impact population mental health and to use information to narrow mental health disparities, promote mental health equity, and support good mental health in the population in the face of increased health care costs and decreased funding for mental health services.

One's access to health services can be considered a social determinant in its own right (e.g., Braveman & Gruskin, 2003; Marmot et al., 2008). Universal health care is viewed by proponents of improving the social determinants of health to be a common good rather than a market commodity (e.g., Marmot et al., 2008). The Canada Health Act's primary objective is "to protect, promote and restore physical and mental well-being and to facilitate reasonable access to health services without financial or other barriers" (Canada Health Act, s. 3) by means of a universal health care system. However, it is not clear that factors such as SES and other potential social determinants have been eliminated as impediments to accessing this care. Within the Canadian general population, recent studies have found several social determinants such as gender, ethnicity, age, and rural/urban location which have been implicated in predicting the use of general and specialized mental health services (Cox, 2014; Mosier et al., 2010; Starkes,

Poulin, & Kisely, 2005; Steele, Dewa, & Lee, 2007; Vasiliadis, Tempier, Lesage, & Kates, 2009). For example, Vasiliadis et al., (2009) found that, compared to men, women were more likely to receive help from a family practitioner, a family practitioner plus a psychologist, or a family practitioner plus another specialized service provider. Cox (2014) also found that women were more likely than men to consult a family practitioner; women were more likely to have 1 to 3 consultations, whereas men were more likely to have zero consultations. Compared to members of other ethnic groups, being White was associated with a greater likelihood of receiving help from a family practitioner plus another specialized service provider. Mosier et al. (2010) found that, compared to younger adults, adults aged 65 years of age and over were significantly less likely to seek services for mental health from a general practitioner, a general practitioner plus another health professional, and any health professional other than a general practitioner. Starkes et al. (2005) found that rural/urban location predicted use of mental health services for people with depression. Likewise, Steele et al. (2007) found that, compared to those living in urban centres, those living in rural settings were more likely to report both accessibility and availability barriers to receiving mental health services from various providers. Although Hardy, Kelly, and Voaklander (2011) did not find rural/urban location to predict accessing mental health services, the authors did find age, sex, race, level of education, and degree of psychological distress to be predictive of who accessed mental health services.

Results such as these are not limited to the Canadian population which further supports and demonstrates the robustness (and universality) of social determinants in predicting the access of mental health services by those in need. For example, gender and age have consistently been shown to be strong predictors of seeking mental health services in several national level surveys, including those from the United States, Iceland, Israel, Australia, and the Netherlands (e.g., Bijl

& Ravelli, 2000; Gudmundsdottir & Vilhjalmsson, 2010; Levinson & Ifrah, 2010; Parslow & Jorm, 2000; Vasiliadis et al., 2007). Ethnicity also consistently has been shown to be a very important social determinant with respect to accessing mental health services, particularly in the United States (e.g., Keyes, et al., 2012; Marcus & Olfson, 2010; Worley, Trim, Tate, Hall, & Brown, 2010). Research on rural/urban location has yielded mixed results, with people living in rural locations less likely than those in urban settings to receive mental health services in some studies (e.g., Donisi, et al., 2013; Gudmundsdottir & Vilhjalmsson, 2010; Parslow & Jorm, 2000), but not all (e.g., Hardy et al., 2011).

The role of psychological distress. Psychological distress has been found to be an important predictor of seeking services. In fact, Mills, Van Hooff, Bauer, and McFarlane (2012), found that one of the most consistent multivariate predictors of seeking mental health treatment from any type of mental health provider was psychological distress in an epidemiological sample of Australian adults (n = 822). Although not a social determinant per se, psychological distress is a robust predictor of mental health service utilization and has the ability to distinguish more severe mental illness (Kessler, 2002) by virtue of measuring the severity of nonspecific psychological distress. It is, therefore, important to examine whether social determinants alone predict service utilization, or whether it is the experience of symptoms and the distress experienced as a result of these symptoms that ultimately drives the need to seek help. If it is the former, then the case is strengthened for the importance of social determinants as stand-alone predictors of seeking mental health services. If it is the latter, then the focus of future research and policy needs to be on reaching people experiencing symptoms of mental illness earlier through, for example, education on symptoms and information on the availability of treatments. It is, additionally, important to examine whether there is a moderation effect of social

determinants on distress levels in predicting who will access mental health care. Finally, it is important to determine whether those most in need (i.e., likely experiencing more severe mental illness) are receiving services amongst those already in likely need of mental health treatment.

The role of SES. Within the social determinants framework, income and education have demonstrated to have predictive value with respect to the accessing of mental health services worldwide, although the nature of the association with accessing services is not always consistent. For example, Donisi, et al. (2013) found, when examining patient contact in three Italian community psychiatric service settings (n = 3,362), that level of education was positively associated with the number of outpatient mental health care contacts. Likewise, in a study examining accessing mental health treatment (in the form of primary care, mental health care, informal care, or some form of care) in the Netherlands Mental Health Survey and Incidence Study (n = 7,147), Bijl and Ravelli (2000) found that education was a determinant of mental health care use, whereas income was not. There was an observation, however, that middle-income respondents utilized more mental health care treatment than did other respondents. In Australia, based on data from the National Survey (n = 10,641) education, as opposed to income, was also found to be one of the variables most associated with the use of any mental health service (Parslow, & Jorm, 2000). When examining mental health utilization for the United States, Canada, and the Netherlands, Alegria et al. (2011) found that, when sociodemographic and psychiatric morbidity were controlled for statistically, income was not related to receiving any form of outpatient mental health treatment in any of the locations. However, there was a positive relation between income and utilizing specialist mental health services in the United States, and a U-shaped relation in the Netherlands, suggesting that the predictive effects of income may be moderated by the nature of the mental health care system. In the United

Kingdom, examining psychotherapy utilization in both the private and public systems based on the British Household Panel Survey (n = 28,054), Jokela, Batty, Vahtera, Elovainio, and Kivimaki (2013) found that education was the strongest predictor of any SES variable (i.e., income, education, occupational class) for receiving psychotherapy in the private sector. Having lower education and income was associated with increased odds of receiving psychotherapy treatment in the publically funded system. When examining changes in service utilization between 1991 and 2009, Jokela et al. noted that there were no changes in use of the private sector for psychotherapy between 1991 and 2009, however, there was a tendency for those with higher income and education to utilize the private sector. Although higher levels of income and education were still predictive of utilizing psychotherapy in the public sector, it was far less pronounced than in the private sector, suggesting people with the highest SES were more likely to seek out private psychotherapy and people with lower levels of SES were more likely to utilize the publically funded psychotherapy. The authors noted that the gradients of income and education were widening amongst those who utilized the publically versus privately funded systems when they compared mental health service utilization in 1991 and 2009.

The question of the role that SES plays in accessing mental health care in Canada is particularly interesting as, if Canada truly has a universal health care system, one would expect to find the predictive value of SES with respect to receiving treatment to be considerably reduced, if not altogether absent. It is, therefore, important to examine whether the trends found in many countries apply to Canada as well. Perhaps surprisingly, however, within the social determinants framework, the role that SES (i.e. income and education) plays in accessing services in Canada is also unclear, particularly whether income and education affect treatment seeking in the same way. For example, Starkes et al. (2005) found that income was a greater

predictor of having a mental disorder, whereas education played a greater role in the likelihood of receiving treatment. Likewise Vasiliadis et al. (2009) found education to be a predictor of seeking certain specialized services, whereas income was not. Steele, Dewa, and Lee (2007) found that neither education nor income levels were a significant predictor of reporting barriers of accessibility to services in Canada. However, in a prior study, these authors examined neighbourhoods in the central southern portion of Toronto and found that, based on levels of education, neighbourhoods with the highest levels of education (after adjusting for respondent age) had almost twice as many claims for psychiatric services as did neighbourhoods with the lowest levels of education (Steele, Glazier, & Lin, 2006). One could argue that the neighbourhoods with the highest education levels also likely had higher income levels and, therefore, this variable cannot be ignored as it was not controlled for statistically. Finally, when comparing mental health service usage in Canada to the United States, a country where specialist care is positively associated with income level (Alegrial, Bijl, Lij, Walters, & Kessler, 2000), Vasiliadis, Lesage, Adair, Wang, and Kessler (2007) found no significant differences between the two countries.

What has not been explored in this line of inquiry is whether SES (i.e., education and income) may moderate the effects of other social determinants in predicting the use of mental health services. That is, does SES in interaction with these other social determinants better explain service utilization than the variables do on their own? For example, higher education within ethnic groups may be associated with increased knowledge of services and greater ability to navigate a complicated health care system; likewise, higher income within location of residence may provide the means with which to pay for needed services or for the costs associated in attending services (transportation, parking, etc.). Some research has found

moderating effects of ethnicity for women seeking mental health services, as well as for their satisfaction with such services (Alvidrez, 1999). The identification of moderators is important in order to clarify the specific circumstances when a sociodemographic variable is most relevant and the characteristics of those for whom a moderator predictor variable is important (e.g., Kraemer, Wilson, Fairburn, & Agras, 2002). For these reasons, examining possible moderation effects is a common practice in psychological research in order to enhance the extent to which key outcomes can be predicted.

Additionally, as discussed by Braveman and Gruskin (2003), it is not simply being part of a disadvantaged group that places one at risk, but where that social group is placed within a society with respect to wealth, power and prestige. These authors attempted to define and operationalize the concept of health equity, stating it is the absence of systematic disparities in health or in the social determinants of health, between social groups that have different levels of social advantage or disadvantage. Braveman and Gruskin provided several examples of disadvantaged groups including, but not limited to the following: (1) socioeconomic groups (e.g., income and education amongst other common measures of SES), and (2) racial/ethnic groups or groups defined by gender, geography, age and any additional characteristics relevant to a setting. Given the strong association between education and mental health service utilization in Canada, and the inconsistent nature of income in predicting service utilization (though strongly associated with presence of a disorder), it is worth examining whether these two variables interact to predict those who are most likely to receive mental health services. Moreover, given the disparity amongst social determinants themselves in Canada (e.g., variation in income amongst members of the same gender, ethnic, or age category), it may be that there are interactions between SES

and these various demographic factors that better account for those who will ultimately receive mental health services.

Accessibility to Mental Health Services and the Current Studies

The focus of all of the above mentioned studies conducted in the Canadian context has been on the mental health providers seen (i.e., physician, psychologist) by survey respondents rather than on treatments received (i.e., medication and psychotherapy) by survey respondents. This is problematic for several reasons. Although certain factors may predict service use with specific providers (i.e., general versus specialized mental health service), and although many providers are in the public health care sector in Canada, many mental health services are provided within the private sector (i.e., services provided by non-physicians outside of a hospital context as well as most medications prescribed outside of an inpatient hospital setting). The above mentioned studies which have examined the Canadian general population indicate a role for SES in predicting the utilization of mental health services from some, but not all professionals. However, it is unclear as to whether SES plays a role with respect to actually receiving any form of mental health treatment from any health service provider. It is this broader question that must be addressed if we are to determine the extent to which the entire health care system (i.e., federally and provincially) is meeting the mental health care needs of Canadians.

An additional challenge in ensuring the accessibility of mental health services is the fact that, even if a provider is covered by the public health care system (i.e., a physician), some of the treatments offered by these providers (i.e. medication) are most likely not covered by the public system. Although there is a possibility one could receive help from a provincial drug plan under special circumstances, there is little evidence that these plans are significantly helping those with mental disorders (cf. Dewa et al., 2005). Therefore, having the expenses covered to see a

provider does not necessarily equate having the expenses covered to receive the treatment. One exception to this rule is psychotherapy, in which case seeing the professional equates with receiving the treatment. Although there are professionals within the public system who are able to provide psychotherapy (e.g., family physicians, psychiatrists), the vast majority of providers who specialize in psychotherapy provision (e.g., counsellors, social workers, psychologists), are in the private sector and many do not provide care within a hospital context which is required for coverage under the Canada Health Act (Madore, 2005). Treatment with psychotherapy and medication (e.g., monitoring, prescription renewal) both require multiple visits to a provider to receive the treatment, however, the research described above only examined whether a person had seen a provider at least once. Very few treatments, whether medication or psychotherapy, would require only one visit, particularly when dealing with people with mental disorders or substance dependence that meet diagnostic criteria. Thus, the criterion of having seen a provider at least once is likely to greatly overestimate the number of people who actually receive the course of treatment that is indicated to address their mental health conditions. Much of the research to date, therefore, may not have accurately identified the factors that influence receiving a course of treatment as opposed to an initial consultation.

Finally, the above mentioned studies have all focused on outpatient mental health service utilization. Under the Canada Health Act, services received within a hospital (i.e. inpatient care) are automatically covered by public funding. Inpatient services are very expensive and it is, therefore, important to examine whether those unable to receive services in the community are receiving services in hospital settings. For example, Jokela et al. (2013) found that SES was a strong predictor when comparing publically versus privately funded services, such that patients coming from lower SES were increasingly utilizing publically funded services and patients

coming from higher SES were much more likely to utilize privately funded services, regardless of distress levels. When examining inpatient mental health service use in the United States, Park, Metraux, and Culhane (2010) found that homeless people (often living in shelters) had higher rates and more days spent in inpatient mental health care than did low SES people who had a permanent home (15.6% versus 5.7%). Additionally, when examining Winnipeg neighbourhoods based on income levels, Roos and Mustard (1997) found individuals from lower income neighbourhoods were hospitalized (for any health related reason) at a much higher rate than were individuals from higher income neighbourhoods. It is, therefore, important to examine whether this same trend is occurring with respect to mental health concerns in the broader Canadian population.

Social Determinants, Psychological Distress, and Barriers to Mental Health Services

Although it is important to examine the characteristics of those who are receiving mental health services in Canada, given the high proportion of unmet need (i.e. approximately two-thirds of those meeting diagnostic criteria report not having their mental health service needs met), it is equally important to examine the characteristics of those who are not receiving treatment and what specific barriers may be impeding access to mental health care. By examining "both sides of the coin" we may gain a fuller picture of why so many in need are not receiving treatment. The same psychological distress and demographic variables (e.g., gender, age, urban/rural, and ethnicity) that have demonstrated predictive value with respect to accessing mental health services have also been associated with experiencing greater obstacles in reaching these services (Copeland & Snyder, 2011; Elliott, Westmacott, Hunsley, Rumstein-McKean, & Best, 2014; Giacco, Matanov, & Priebe, 2014; Gutierrez-Loboz, Wolfl, Scherer, Anderer, & Schmidl-Mohl, 2000; Nelson & Park, 2005; Starkes et al., 2005).

Gender is a well-known and consistent predictor of mental health service use (e.g., Holden, McGregor, Blanks, & Mahaffey, 2012; Moller-Leimkuhler, 2002). For example, in a review of the literature, Moller-Leimkuhler (2002) found studies from the United States, Australia, Germany, Switzerland, and Canada consistently showed gender to be a strong predictor of mental health service utilization. In an Australian study, Rickwood and Braithewaite (1994) found gender to have a direct effect on help-seeking when controlling for psychological symptoms in a sample of 715 adolescents suffering from emotional problems. Likewise, in their review of the literature on the social determinants of mental health help-seeking in African American men, Holden et al. (2012) reported an extensive body of research that shows women are more likely than men to seek help for mental health problems across all ethnic groups within the United States. Both Holden et al. (2012) and Moller-Leimkuhler (2002) discussed psychosocial issues such as stigma, acceptable behaviours and roles for men, and a history of self-reliance and resiliency amongst African American men as possible barriers to seeking mental health care. Roy, Tremblay, Oliffe, Jbilou, and Robertson conducted a systematic review of 46 studies, published between 1995 and 2012, examining barriers to help seeking for male farmers. They found that some important barriers to seeking mental health treatment were the stigma associated with transgressing gender role norms surrounding rural masculinity, rural stoicism (e.g., surveys conducted in Canada and Australia suggested many male farmers believed they could effectively self-manage stress and mental health issues), and a lack of awareness of professional resources available.

Age is another strong and consistent predictor of utilizing mental health services (e.g., Bijl & Ravelli, 2000; Gudmundsdottir & Vilhjalmsson, 2010; Levinson & Ifrah, 2010; Moller-Leimkuhler, 2002; Parslow & Jorm, 2000; Vasiliadis et al., 2007), with adults between 25 and 64

more likely to utilize services (Moller-Leimkuhler) than adults over the age of 65 or under the age of 25 (Shapiro et al., 1984; Wang et al., 2005). Gulliver, Griffiths, and Christenson (2010) conducted a systematic review of 22 published studies of perceived barriers or facilitators in adolescents and young adults (12-25 years of age) from Australia, the United States, the United Kingdom, and China. The most common barriers reported were stigma, embarrassment, problems recognizing symptoms (i.e., poor mental health literacy), and a preference for self-reliance in addressing any symptoms. With respect to older adults (i.e., over 65 years of age) studies have found stigma (both public and internal) to be a barrier to accessing mental health treatment (Choi & Kimbell, 2009; Conner et al., 2010), as well as knowledge about services and mental illness (Choi & Kimbell, 2009), structural concerns such as mobility, and the complexity of the health system (Choi & Kimbell, 2009; Knight & Sayegh, 2011).

It is well-documented that rural location is inversely related to mental health service use (Parslow & Jorm, 2000; Jackson, et al., 2007). The precise nature of the barriers associated with rural locations is far less researched (Jackson, et al. 2007). In a systematic review of this literature, Jackson et al. (2007) identified nine international studies that examined help-seeking within a rural context. Gender was found to be an important moderator, with rural men less likely to seek services than urban men in the United Kingdom, Ireland, and the United States. Jackson et al. also found knowledge and awareness of mental illness and stigma to be important barriers in Ireland, with male rural research participants reporting less awareness of mental health issues and more concern with stigma and ability to cope than did women living in rural Ireland. Additionally, concerns of stigma (regardless of gender) were found to be more prevalent in rural communities than in urban communities. Other attitudinal barriers that were reported in the literature were stoicism and self-efficacy. Jackson et al. (2007) cautioned that, although these

barriers are predictive of mental health service utilization in rural locations, it is not clear whether these barriers are more prevalent in rural communities than in urban communities.

Ethnicity has consistently been found to be a potential barrier to accessing mental health services. Giacco et al. (2014) reviewed 32 articles published between June 2012 and November 2013 that focused on barriers encountered by people who have immigrated when seeking mental health care in European countries, the United States, Canada, and Australia. They found that barriers to mental health care included (1) language barriers, (2) different beliefs in explanatory models of mental illness, (3) confidentiality concerns, (4) influence of stigma, and (5) reluctance to seek help outside of immediate social networks. Copeland and Snyder (2011) examined perceived barriers to receiving mental health services amongst African American women (*n* = 32) aged 18-55. The major themes that emerged were economic stressors (e.g., low income, not being able to afford services), fears of the system (e.g., getting "locked up" in a hospital if one were to receive a diagnosis), and misperceptions of the system (e.g., losing their children if diagnosed as depressed or discussed their problems). Ethnicity is, therefore, an important variable to control for in any model of accessibility of mental health care given the vast differences in utilization of mental health services.

In the Canadian context, Nelson and Park (2005) were interested in examining reasons for unmet need in mental health services in Ontario in relation to age and gender. Utilizing the CCHS 1.2 data set (specifically the province of Ontario; *n* = 13,184) they found that those aged 15-44 had a significantly higher rate of unmet need than people aged 45-64. Additionally, they found that people aged 65 and older reported the lowest rates of unmet need and that, compared to men, women reported almost twice the number of barriers due to acceptability of services and almost three times the number of barriers due to accessibility of services. Using the same

national survey, but examining data from respondents living in the provinces of Atlantic Canada (i.e., Nova Scotia, New Brunswick, Prince Edward Island, and Newfoundland; *n* = 17, 836), Starks et al. (2005) found that, compared to other age ranges, being aged 20-44 was associated with the greatest level of unmet mental health need. Additionally they found people living in rural areas were less likely to receive specialist care. Wang (2006) examined barriers to mental health service utilization amongst those with any mental disorder, including substance abuse, in the past 12 months (*n* = 4,134) and found a greater proportion of perceived unmet mental health service need in those who utilized mental health services (29%) than in those who did not utilize mental health services (17.4%). Regardless of whether mental health services were used, she found that self-reported barriers due to acceptability of services were greater than self-reported barriers due to accessibility of services or availability of services.

The role of psychological distress. Psychological distress is generally associated with accessing mental health services (e.g. Hardy et al., 2011; Mills et al., 2012), However, Elliott et al. (2014) found, in a Canadian sample, that level of self-reported distress was positively associated with the degree of difficulty in deciding one was experiencing symptoms related to a mental health problem, and with the degree of difficulty in deciding therapy might help alleviate these symptoms. There may, therefore, be a role for psychological distress in encountering barriers to seeking mental health services and further investigation is required. For example, it may be that psychological distress levels facilitate help-seeking up to a certain level, at which point it becomes overwhelming and hinders a person's abilities to navigate a complex system. As with accessibility of mental health services, it is important to include psychological distress in the examination of barriers to mental health services to investigate whether psychological

distress is in fact playing an important role alongside or, potentially interacting with, social determinants to better explain why so many do not receive mental health treatment.

SES and Barriers to Mental Health Services

Although numerous research studies have identified income and education as being predictive of accessing mental health services, it is less clear whether these variables predict experiencing barriers to mental health services. As discussed by Mohr et al. (2010), despite repeated calls for research to overcome individual and systemic barriers to psychological treatments, little is actually known about the nature of the barriers experienced for these treatments and for mental health services in general. For example, Sareen et al. (2007) examined perceived barriers to mental health services utilizing national surveys in the United States (n = 5,384), Canada (n = 6,261), and the Netherlands (n = 6,021). Comparing these three countries, financial barriers were significantly more likely to be reported by respondents in the United States than in Canada or the Netherlands. Wong, et al. (2006) examined barriers to mental health services within a sample of adults in a Cambodian refugee community in the United States (n = 490). The researchers were surprised that attitudinal and cultural barriers were reported the least often by respondents, with the most commonly reported barrier (endorsed by 80% of the sample) being financial (i.e., that services would cost too much money). Despite these findings of cost being a strong predictor of services, when Mohr et al. (2010) developed a measure of Perceived Barriers to Psychological Treatments (PBPT), cost of therapy did not meet criteria for inclusion in the scale based on an exploratory factor analysis and follow up confirmatory factor analysis. There appears, therefore, to be some inconsistency regarding the importance of cost as a potential barrier to mental health services.

In the Canadian context, regarding level of SES (i.e., income and education) as a potential barrier to accessing mental health services, only two studies have examined this issue (Steele, et al., 2007; Vasiliadis, Tempier, Lesage, & Kates, 2009). Vasiliadis et al. (2009) examined SES indirectly by examining the barriers of accessibility, acceptability, and availability within the broader framework of Andersen's behavioural model of care seeking, specifically as "need factors" (Andersen, 1995). Andersen proposed that three factors are differentially able to explain health service use, namely "predisposing" factors (e.g., demographics, social structure and health beliefs), "enabling" factors (e.g., personal, family or community resources, including income), and "need" factors (e.g., perceived or evaluated need of health services). Although highly debated as a model, and without fixed definitions of what each factor consists of, Andersen defined equitable access as occurring when demographic and need variables account for most of the variance in service utilization, and inequitable access occurring when social structure, health beliefs or enabling resources (e.g., income) predict service utilization. Utilizing the full sample of participants aged 18 and older, (N = 35,236), Vasiliadis et al. (2009) found that self-reported income was not associated with either the perceived barriers of accessibility or acceptability. Although recognizing there were still gaps in service utilization, Vasiliadis et al. viewed the overall results as positive given that need factors were the strongest predictors of receiving services from a psychiatrist and family practitioner. The authors concluded that under Canada's universal health care system, issues other than the cost associated with services predict unmet need and that availability and accessibility of mental health services are not the primary problems with respect to challenges in accessing mental health services. Steele et al. (2007) examined whether SES (i.e., education and income) was a barrier to accessing mental health services in the Canadian general population. The sample

included all adults (18 and over) who met probable diagnostic criteria for a mood or anxiety disorder (*n* = 3,101). The authors found that SES (i.e. education—defined as high school versus no high school, and income—dividing the distribution into quintiles) did not predict barriers of accessibility, which were identified as an unmet need by three percent of the study sample. Acceptability barriers were the most frequently cited (16%) and neither income nor education significantly predicted this variable. Barriers due to availability were reported by five percent of the sample and people without a high school diploma were more likely to report this as a barrier to services than were others. The authors concluded that under Canada's universal health care system (1) issues other than the cost associated with services predict barriers to accessing mental health services, (2) availability and accessibility of mental health services is not the primary problem and (3) acceptability of mental health services is the most frequently endorsed barrier, particularly amongst a subsample of the working poor.

Two major problems can be identified with these studies, as well as the previously mentioned studies examining broader sociodemographic characteristics (i.e., Nelson, & Park, 2006; Wang, 2006; Sareen et al., 2007) which call their results into question: (1) how unmet need has been defined, as well as (2) how the barrier variables were examined. The proposed set of dissertation studies will attempt to address these concerns by examining the following issues more closely.

Defining unmet need. As mentioned above, several studies have examined unmet need within the Canadian population (Nelson, & Park, 2006; Sareen et al., 2007; Steele, et al., 2007;Vasiliadis, Tempier, Lesage, & Kates, 2009; Wang, 2006). A major problem with each of these studies, however, is how these studies defined unmet need. First, the authors included all types of unmet need when examining barriers to mental health service. In the CCHS, Statistics

Canada provided nine options of potential unmet need when asking respondents whether they had needed help in the past month that they did not receive for their emotions, mental health, or use of alcohol or drugs: (1) information about mental illness and its treatments, (2) information on availability of services, (3) medication, (4) therapy/counselling, (5) help with financial problems, (6) help with housing problems, (7) help with personal relationship problems, (8) help with employment status, and (9) help with "other" problems. Respondents had the opportunity to endorse or deny each unmet need. Although all of these options could be associated with mental health problems, they do not all necessarily have to be. By grouping these variables together, important differences amongst barriers with respect to types of unmet need may be masked. For example, medication treatment and psychotherapy treatment are quite different with respect to the time required for meeting with the service provider and the level of self-disclosure that is required. As a result, there may be different barriers associated with the two types of treatments. Despite this, it appears that the possible differential influence of barriers for these treatments has never been examined (Mohr et al., 2010). It is, therefore, important to examine unmet needs specifically related to mental health (i.e., information about mental illness and its treatments, information on availability of services, medication, therapy/counselling) and to examine the barriers associated with each of these types of unmet needs independently.

Defining barriers to mental health service. The second problem with the above mentioned studies that have examined unmet need within the Canadian general population is how the barriers to receiving the needed service were measured. If an unmet need was endorsed by respondents in the CCHS 1.2 data set, they were then asked once (regardless of how many unmet needs were endorsed) what barrier(s) prevented them from receiving the identified help. Respondents were provided with 12 possible options and were given the opportunity to endorse

or deny each of: (1) preferred to manage yourself, (2) didn't think anything more could help, (3) didn't know how or where to get help, (4) afraid to ask for help or of what others would think, (5) couldn't afford to pay, (6) problems with things like transportation, childcare or scheduling, (7) professional help not available - in the area, (8) professional help not available - at time required (e.g., doctor on holidays, inconvenient hours), (9) waiting time too long, (10) didn't get around to it/didn't bother, (11) language problems, and (12) personal or family responsibilities. Statistics Canada then grouped these variables into three latent variables: (1) accessibility (defined as could not afford to pay, and problems with things like transportation, childcare or scheduling), (2) acceptability (defined as preferred to manage yourself, did not think anything more could help, did not know how or where to get help, afraid to ask for help or of what others would think, did not get around to it/did not bother, language problems, and personal or family responsibilities), and (3) availability (defined as professional help not available in the area, professional help not available at the time required, and waiting time too long). However, no statistical analyses were reported by Statistics Canada to justify grouping the items into these three categories.

Measurement Concerns Regarding Accessibility, Acceptability, and Availability

The two key factors that must be taken into account when determining the accuracy and validity of a measure are the sampling design and the psychometric properties of the measures used. Although the CCHS 1.2 data set utilizes the state-of-the-science requirements for population surveys, there are some questions regarding the psychometric properties of some of its scales. Some of the measures used, such as the Composite International Diagnostic Interview and the Kessler Distress Scales, are well established and have demonstrated reliability (Kessler, et al., 2002; Kessler & Ustun, 2004), but other measures, in this case the derived variables of

accessibility, acceptability, and availability, appear to have been developed without any reported reliability or validity testing (Statistics Canada, 2002a). It is unclear, therefore, whether the data provided by these variables are likely to be reliable and valid. As a result, this calls into question the validity of conclusions based on research using these three barrier variables. Given that one of the purposes of the CCHS 1.2 dataset was to provide accurate data that could aid in the development of public policy (Statistics Canada, 2002b), it is of utmost importance that the results accurately reflect the data.

Overview of Studies and Hypotheses

The present dissertation consists of three separate studies which examine accessibility and barriers to mental health care in Canada. In order to examine the barriers to mental health care, an evaluation of the reliability of the measure used to examine and determine barriers was needed. More specifically, the three studies in this dissertation examine: (1) whether SES and social determinants as well as psychological distress predict the number of consultations with any mental health provider for any mental health disorder or substance dependence in a given year in the Canadian general population, (2) the factor structure and reliability of the proposed three-factor derived measure of accessibility, acceptability and availability as recommended by Statistics Canada, and (3) whether SES and social determinants as well as psychological distress predict barriers to mental health services and whether there are different barriers to different mental health treatments (i.e., medication versus psychotherapy). All three studies are drawn from the Canadian Community Health Survey, cycle 1.2 Mental Health and Wellbeing data set, a data set designed specifically to "provide timely, reliable, cross-sectional estimates of mental health determinants, mental health status and mental health system utilization across Canada" (Statistics Canada, 2002c, p. 4). At the time of the design of these studies, this was the most up-

to-date survey examining these issues in a Canadian context. Although the issue of mental health services is complex in Canada, with a mix of public and private services, to the best of my knowledge, no survey fully separates or differentiates these services. Therefore, although the data do not allow us to know with complete certainty whether services were covered by the public health care system (an issue that is more complex with regard to psychotherapy than medications in certain circumstances), and although we are unable to determine whether seeking these services began as a result of the individual deciding help was needed (versus a referral from a general practitioner), the data do allow for an examination of visits to various mental health care providers within the Canadian system and an examination of SES, other social determinant variables and psychological distress as possible predictors for attending these visits in one of the most comprehensive mental health surveys at the Canadian population level available.

Study 1. Study 1 was designed to examine whether SES (i.e. income and education) and the following social determinants (i.e., rural/urban location, ethnicity, gender, age) as well as psychological distress predicted the number of services received from any mental health provider for any mental health disorder or substance dependence (a derived variable by Statistics Canada) in the previous 12 months. These social determinant variables, as well as psychological distress were selected due to their established associations in accessing mental health services both internationally and in the Canadian context. It additionally assessed whether SES has a moderation effect on these other social determinants and psychological distress. It then examined whether this SES/social determinants model predicted an overnight hospital stay and overall satisfaction with services. Finally, it examined whether insurance coverage and out-of-pocket spending predicted total number of services received from any mental health provider over and

above the SES/social determinants model and whether out-of-pocket spending predicted overall satisfaction with services over and above the SES/social determinants model. Based on findings in the previous literature, it was predicted that there would be a positive association between SES and receiving any service from any health provider and that insurance coverage and out-of-pocket spending would predict incremental variance over and above the SES/social determinants model in receiving services and overall satisfaction with services. Additionally, based on the literature discussing the importance of wealth and power and its impact on other social determinants (e.g., Braveman & Gruskin, 2003), it was predicted that SES would moderate the other social determinants included in the model.

Study 2. Study 2 was designed to examine the factor structure and reliability of the proposed three latent variables of accessibility, acceptability and availability utilized by statistics Canada and several studies when examining barriers to mental health services in the CCHS 1.2 dataset. First, it tested the three factor structure utilizing a confirmatory factor analysis as well as generating Cronbach's reliability values for each of the three measures. Following this, an exploratory factor analysis was run to examine an alternative factor structure, as well as examining the Cronbach's alpha for each of the two new factors identified in this analysis. Finally, the Spearman-Brown prophecy formula was utilized to examine how many similar items would be required in each measure in order to establish an adequate reliability value of at least .70.

Study 3. Study 3 was designed to examine whether the SES/social determinants model utilized in study 1 also predicts perceived unmet need regarding mental health services (i.e., (1) information about mental illness and its treatments, (2) information on availability of services, (3) medication, (4) psychotherapy/counselling) as well as any of the associated barriers with each

of these unmet needs (i.e., (1) preferred to manage yourself, (2) didn't think anything more could help, (3) didn't know how or where to get help, (4) afraid to ask for help or of what others would think, (5) couldn't afford to pay, (6) problems with things like transportation, childcare or scheduling, (7) professional help not available - in the area, (8) professional help not available - at time required (e.g., doctor on holidays, inconvenient hours), (9) waiting time too long, (10) didn't get around to it/didn't bother, (11) language problems, and (12) personal or family responsibilities). Based on the previous literature and studies in this dissertation, it was hypothesized that there would be an inverse relation between education and endorsing any unmet need. Regarding income, although there is some inconsistency as to whether income plays a role in receiving mental health service (e.g., Alegria, et al., 2000), the results of study 1 found that out-of-pocket spending accounted for nearly a quarter of the variance in the number of consultations with any provider for any mental health disorder. It was, therefore, predicted that there would be an inverse relation between income and endorsing any unmet need.

The second goal of the study was to examine whether the SES/social determinants model predicted endorsing the specific barriers associated with unmet need. Overall, it was predicted that there would be an inverse relation between both income and education with respect to endorsing any of the barriers associated with unmet needs reported by respondents in the CCHS 1.2 survey.

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CHAPTER 2

The Role of Socioeconomic Status and Social Determinants in Predicting Access to Mental Health Care in Canada

Abstract

The role socioeconomic status (SES) and social determinants play in receiving mental health services has received little investigation. Using the Canadian Community Health Survey (CCHS) cycle 1.2 (samples ranging from n = 269 to n = 1,468) we examined the role of SES (i.e., income and education), social determinants (i.e., ethnicity, rural/urban location, gender, age, level of psychological distress), insurance coverage, and out-of-pocket spending in predicting the number of services received in a year for psychotherapy and medication from any mental health service provider. Both income and education predicted the number of visits for psychotherapy but insurance coverage did not. Out-of-pocket spending was the strongest predictor of receiving any treatment, from any provider. Interactions between the SES and social determinants did not predict service utilization. Implications for research on social determinants of health are discussed, including ways in which income may exert an influence on access to mental health services.

The Role of Socioeconomic Status and Social Determinants in Predicting Access to Mental Health Care in Canada

Introduction

Canada is known internationally for its publically funded health care system. The Canada Health Act ensures all Canadians, regardless of income, are offered equal access to physicians and "medically necessary" services within a hospital setting (Madore, 2005). It is questionable, however, how universal access is for mental health services. There are several types of mental health service providers in Canada (e.g., family physician, psychologist, psychiatrist, social worker) and two major forms of evidence-based treatment (i.e., psychotherapy and medication). Not all providers are covered by the publically funded system. Moreover, treatments such as medication fall predominantly within the domain of private health care services and psychotherapy is commonly provided by professionals who are reimbursed via private health insurance (often involving patient co-payments and annual capitation). This heavy reliance on privately funded health care likely accounts for the similarity in mental health care use between Canada and the United States (Vasiliadis, Lesage, Adair, Wang, & Kessler, 2007). When Vasiliadis et al.(2007) compared mental health service use between Canada and the United States (a country where health care is predominantly in the private sector), they found no significant differences between the two countries.

Approximately two-thirds of Canadians who meet criteria for a mental health disorder are not receiving treatment (Tempier et al., 2009). This is particularly discouraging given the fact that past year diagnosis is one of the strongest predictors of mental health service use (Lin, Goering, Offord, Campbell, & Boyle, 1996; Vasiliadis, Tempier, Lesage, & Kates, 2009). For example, Lin et al. (1996) examined data from the Mental Health Supplement of the Ontario

Mental Health Survey (*n* = 8,116) and found that the majority of people (i.e., 57.8%) who had utilized mental health services in a given year had a mental health diagnosis (versus 27.1% who had not met criteria). Likewise, Vasiliadis et al. (2009) examined data from the Canadian Community Health Survey (CCHS) cycle 1.2 (*n* = 35,236) and also found that need factors, including presence of a mental health disorder were most predictive of utilizing mental health services in Canada. Given the fact that so many in need do not receive treatment, it is important to examine what other predictors play a role.

It is likely that one's ability to pay (i.e., income) plays an important role in receiving services. However, it is widely known that other factors such as socioeconomic status (SES; i.e., education and income together) as well as other social determinants (i.e., conditions within the social and physical environment that have an impact on people's health, the options available for treatment, and their accessibility), and levels psychological distress influence the ability of those with health needs to receive services (e.g., Koh, Piotrowski, Kumanyika, & Fielding, 2011; Mills, Van Hooff, Bauer, & McFarlane, 2012). Indeed, there are a substantial number of social determinants (e.g., gender, age, ethnicity, rural/urban location) that predict utilization of mental health services (e.g., Hardy, Kelly, & Voaklander, 2011; Mosier et al., 2010; Starkes, Poulin, & Kisely, 2005; Steele, Dewa, & Lee, 2007; Vasiliadis, et al., 2009). Consistent with the expanding focus of health research to include factors other than the presence of illness itself, (e.g., World Health Organization, 2008), in this study we seek to examine the impact of SES and other social determinants as well as levels of psychological distress on receiving treatment for mental disorders and/or substance dependence in Canada.

Defining Socioeconomic Status

Although there are a plethora of ways to define SES, for the purposes of this study, it will be defined as two measures: (1) the highest level of an individual's education as well as (2) total household income associated with an individual. These are two traditional measures of SES that, although correlated with similar measures such as occupational status and health outcomes, are not interchangeable (Braveman, et al., 2005; Shavers, 2007). Additionally, Braveman et al. (2005) cautioned against the common practice of utilizing education as a proxy for income, as the correlations between the two variables are of only moderate size (i.e., generally below r = .50) and income can vary amongst different levels of education and across ethnic, sex, and age groups. Education is, however, a fundamental component of SES, as it can influence future employment (and, therefore earning potential) and often precedes the initial expression of disorders (thereby reducing the likelihood of reverse causation effects; Shavers, 2007). Because income and education are commonly used measures of SES, using these variables allows for cross-study comparisons (cf. Lorant et al., 2003). Moreover, in a systematic review of social inequalities amongst the "common mental disorders" (i.e., depression and anxiety), Fryers, Melze, and Jenkins (2003) found that, of the various SES variables utilized in the nine large-scale population surveys they examined, education and income provided the most compelling evidence of influence on the presence of a mental disorder.

Although SES has long been recognized as having a major impact on the presence of mental disorders (e.g., Bijl, Ravelli, & van Zessen, 1998; Caron & Liu, 2010; Jokela, Batty, Vahtera, Elovainio, & Kivimaki, 2013; Kosidou et al., 2011; Lorant et al., 2003), it is less clear what role it plays regarding accessing mental health services. For example, Vasiliadis et al. (2007) found education to be an important determinant in accessing mental health services in both Canada and the United States, with those having a university degree more likely to receive

treatment. In contrast, Alegrial, Bijl, Lin, Walters, and Kessler (2000) examined and compared outpatient mental health treatment between the United States, Ontario (Canada), and the Netherlands. They found that, when differences in demographics and psychiatric morbidity were controlled for, there were no significant associations between income level and receiving any outpatient mental health treatment in any of the three countries. However, when they examined income and receiving specialty mental health care, income was positively related to receiving specialist care in the United States, there was no association in Ontario, and there was a U-shaped relation in the Netherlands with those in the middle income bracket least likely to receive specialist services.

Focusing on the Canadian context, it is not clear whether education and income both affect mental health treatment seeking in the same way. For example, Starkes et al. (2005) found income to be a greater predictor of having a mental disorder, whereas education increased the likelihood of receiving treatment. Vasiliadis et al. (2009) found education predicted seeking certain specialized mental health services, whereas income did not. Steele, Dewa, and Lee (2007) found neither education nor income were barriers when examining predictors of accessibility to mental health services in Canada. Likewise Lin et al. (1996) did not find education to be a significant predictor of mental health treatment use in Ontario. These conflicting findings, in combination with the trend to find no relation between income and access, have led some researchers to conclude that the universal health care in Canada is working and that other factors must be influencing access (e.g., Vasiliadis et al., 2009). Given that the Canada Health Act explicitly states its purpose is "to facilitate reasonable access to health services without financial or other barriers" (Canada Health Act, s. 3) it is important to clarify whether income is in fact playing a role. Additionally, it is possible that education and income interact, whereby those with

the greatest income and education are the most likely to receive services. There is evidence to support this pattern with respect to receiving services from psychologists (Hunsley, Lee, & Aubry, 1999).

Social Determinants

Social determinants of health are the conditions in which people are born, grow, live, work, and age, and are affected by the distributions of money, power, and resources (WHO, 2014). As discussed by the World Health Organization, these social determinants are the main reason for the inequalities seen with respect to health. Although there are many ways to define social determinants, several demographic characteristics have been implicated in predicting the use of general and specialized mental health services, including gender, ethnicity, age, and rural/urban location; although not a social determinant, per se, levels of distress have also shown strong predictive value in accessing mental health services and is therefore an important variable to include in any examination of accessing mental health care (Hardy, Kelly, & Voaklander, 2011; Mosier et al., 2010; Starkes, Poulin, & Kisely, 2005; Steele, Dewa, & Lee, 2007; Vasiliadis, et al., 2009).

For example, Vasiliadis et al., (2009) found that, compared to men, more women were likely to receive mental health services from a family practitioner, a family practitioner plus a psychologist, or a family practitioner plus another specialized service provider. Compared to members of other ethnic groups, they also reported that being White was associated with a greater likelihood of receiving services from a family practitioner plus another specialized service provider. Mosier et al. (2010) found, compared to younger adults, adults aged 65 and over were significantly less likely to seek services for mental health problems from a general practitioner, a general practitioner plus another health professional, or any health professional

other than a general practitioner. Starkes et al. (2005) found that rural/urban location predicted use of mental health services for people with depression; those living in urban settings were more likely to use services than those living in rural settings. Likewise, Steele (2007) found, compared to those living in urban centres, those living in rural settings were more likely to report both accessibility and availability barriers to receiving mental health services from various providers. However, although Hardy et al. (2011) found age, sex, race, level of education, and degree of psychological distress to predict type of service utilization, they did not find location of residence (i.e., rural/urban), to be a significant predictor of accessing mental health services in Canada. Lin et al. (1996) also did not find regional differences in service use in Ontario.

What has not been explored in this line of inquiry is whether SES (i.e., education and income) moderates the effects of other social determinants in predicting the use of mental health services. There is considerable disparity amongst social determinants themselves in Canada (e.g., variation in income/education amongst members of the same gender, ethnic, or age category), and it may be that there are interactions between SES and these various demographic factors that better account for those who will ultimately receive mental health services. Some research has found moderating effects of ethnicity on women seeking mental health services, as well as their satisfaction with such services (Alvidrez, 1999). The identification of moderators is important in order to clarify the specific circumstances when a sociodemographic variable is most relevant and the characteristics of those for whom a moderator predictor variable effects (e.g. Kraemer, Wilson, Fairburn, & Agras, 2002). For these reasons, examining possible moderation effects is a common practice in psychological research in order to enhance the extent to which key outcomes can be predicted. We, therefore, have given special attention to the role of SES in accessing

services, as well as whether it interacts with other social determinants as well as psychological distress to better predict the number of services people received in a year.

Receiving Treatment versus Accessing a Provider

In all of the studies of mental health service utilization described above, researchers have operationalized access to mental health services by focusing on predictions of which professionals provided services (i.e., physician, psychologist) rather than on which treatments were received (i.e., medication, psychotherapy). Taking such an approach limits our ability to fully understand patterns of service utilization, for several reasons. First, the findings of these studies indicate a role for SES in predicting the utilization of mental health services from some, but not all professionals. However, it is unclear as to whether SES plays a role with respect to actually receiving any form of mental health treatment from any health service provider. It is this broader question that must be addressed if we are to determine the extent to which the entire health care system is meeting the mental health care needs of Canadians. Second, these studies have focused strictly on outpatient mental health service use. To the best of my knowledge, the question of whether SES impacts the number of people receiving inpatient hospital services has not been addressed. Given the tremendous cost of hospital stays, it is important to examine whether the inequalities regarding SES that may be evident in outpatient mental health care also exist in inpatient mental health care.

An additional challenge in studying the accessibility of services is the fact that, even if a provider's services are covered by the public health care system (i.e., a physician), some of the treatments offered by these providers (i.e., medication) are not generally covered by the public system, or require additional private insurance to be partially covered. Having the expenses covered to see a provider is not the same as having the expenses covered to receive a course of

treatment. In the case of psychotherapy, receiving services from the professional is equivalent to receiving the treatment. However, the vast majority of those who specialize in psychotherapy provision (i.e., psychologists, counsellors, social workers) are in the private sector and many do not provide care within a hospital context which is required for coverage under the Canada Health Act (Madore, 2005). Although brief therapy can be provided in hospital or primary care contexts, this form of treatment is predominantly a privately funded health care service.

Psychotherapy requires multiple visits to a provider to receive the treatment, with the same being true for medication (i.e., the need for monitoring, prescription renewals). However, the research described above only examined whether a person had seen a provider at least once. Very few treatments would require only one visit, particularly when treating a mental disorder. Thus, the criterion typically used in mental health service utilization research—that of having seen a provider at least once—is likely to greatly overestimate the number of people who actually receive an indicated course of treatment. Additionally, concluding that Canada's public health care is the reason for this accessibility (e.g., Vasiliadis et al., 2009) may be incorrect, as many of the treatments (regardless of provider) are likely not covered, or only partially covered, by insurance (public and/or private). For this reason, factors such as income may well play a more important role than previously concluded. Much of the research to date, therefore, may have accurately identified the factors that affect having an initial consultation, but not necessarily the factors that influence receiving a course of treatment.

The Present Study

The primary goal of this study is to address identified gaps in the literature by examining whether SES, in combination with other social determinants of health and psychological distress, predict *receiving* treatments from any mental health professional, for any mental health or

substance dependence disorder. Furthermore, we will examine whether SES, in combination with these other social determinants and psychological distress, predict the number of mental health treatment visits received from any mental health professional and the overall satisfaction with services received. We will also examine whether insurance coverage and out-of-pocket spending for mental health or substance dependence services predict the number of visits to a professional (i.e., the amount of treatment received), and whether SES, social determinants, and out-of-pocket spending additionally predict satisfaction with services. As the primary focus of this study is the roll of SES (in combination with other social determinants and psychological distress) and its possible moderation effects on the other included variables, all predictions are based on the hypothesized roll of education and income within each of the goals of this study. Overall, we predicted that, compared to those with lower income or lower education, Canadians with higher income or higher education would be significantly more likely to receive both psychotherapy and medication from any mental health professional, as well as to receive a longer duration of treatment.

A second goal is to examine out-of-pocket spending for mental health services. Given that much of actual treatment is provided within the private sector, it was predicted that there would be a significant positive relation between out-of-pocket spending and number of visits with any mental health service provider (i.e., amount of treatment received). The third goal is to examine whether SES, in combination with other social determinants, predicts an overnight hospital stay for mental health services. It may be that those unable to afford treatment receive it through hospitalization as a result of worsening of symptoms. Given that those with lower SES are more likely to experience a mental disorder and are likely to have fewer means with which to pay for services, it was predicted that SES would have an inverse relation with having an

overnight hospital stay. Finally, I will examine overall satisfaction with services. Individuals who are dissatisfied with treatment are more likely to prematurely discontinue services (Swift & Callahan, 2009), therefore it is important to examine whether SES and social determinants, as well as greater out-of-pocket spending, provides a subjectively improved experience. It was predicted that, as SES increases and out-of-pocket spending increases, overall satisfaction with services would also increase.

Methods

Participants and Procedure

The Canadian Community Health Survey (CCHS), Mental Health and Well Being, cycle 1.2 is a cross-sectional survey that targeted people aged 15 and older living in the ten Canadian provinces. It excluded people living in the three territories, on Indian Reserves or Crown lands, residents of institutions, full-time members of the Canadian Armed forces, and people living in some remote areas. Of the age group targeted, this survey covers 98% of the population living within the ten Canadian provinces. A survey weight was given to the data collected from each person included in the final sample, with the weight corresponding to the number of persons represented by the respondent for the entire population.

The survey obtained a sample of 36,984 respondents in order to achieve reliable, provincial level estimates. In order to account for population differences across provinces, sampling occurred proportionally to the square root of the estimated population in each province. Provinces were divided into major urban centres, cities, and rural regions. Within each major urban centre, geographic and socio-economic strata were created, within which between 150 and 250 dwellings were regrouped to create clusters. Within each stratum, six clusters or residential buildings were chosen by a random sampling method with a probability proportional to size, in

which the size corresponds to the number of households. Smaller cities and rural regions were first stratified based on geography, then according to socio-economic characteristics. In the majority of strata, six clusters were selected using the probability proportional to size method. Where there was low population density, a three-step plan was used where two or three primary sampling units (normally corresponding to groups of census enumeration areas) were selected and divided into clusters, six of which were sampled. The sample was obtained using a systematic sampling of dwellings.

The current study uses data from CCHS respondents of all ages who met criteria in the past 12 months for any mental disorder assessed in the survey. These disorders were depression, mania, agoraphobia, panic disorder, social phobia, and alcohol or illicit substance dependence, and were assessed with the Composite International Diagnostic Interview (CIDI) (Kessler & Ustun, 2000). In total, 4,134 participants met criteria for one or more of these disorders. In the calculation of all estimates and tests of significance based on this sample, population weights were used and a bootstrapping technique was completed using the Statistics and Data (STATA) program as recommended by Statistics Canada to adjust for unequal probability of selection for the study (Statistics Canada, 2002a).

Measures

Socioeconomic Status. SES was defined as including both education and income, and each was treated as a continuous variable. Education data were available from the derived variable specifications of Statistics Canada, with respondents indicating the highest level of education they had completed (Statistics Canada, 2002b). There were ten response options: (1) grade 8 or lower, (2) grade 9-10, (3) grade 11-13, (4) secondary school graduate, no post-secondary education, (5) some post-secondary education, (6) trade certificate/diploma from

vocational school or apprenticeship, (7) non-university certificate or diploma from community college, (8) university certificate below bachelor's level, (9) bachelor's degree, and (10) university degree or certificate above bachelor's degree. Income data also came from Statistics Canada's derived variable specification, with income defined as total household income.

Social determinants. The following social determinant variables were included in the model tested in this study: Gender (male/female), age (measured continuously from 15 years of age), ethnicity (defined as "White" versus "non-White"), and rural/urban location.

Psychological distress. Psychological distress was measured with the Kessler Distress Scale-10, a 10-item Likert-type scale designed for screening population trends for general psychological distress, particularly in clinical samples where the scale shows the highest precision and suggests the presence of severe mental illness (Kessler et al., 2002). The scale has demonstrated consistent psychometric properties across major sociodemographic subsamples (Kessler et al., 2002). The scale appears to be valid as a measure of non-specific psychological distress in non-clinical populations; however, in clinical samples, it appears to measure specific psychological distress related to anxiety and depression (Sundersland, Mahoney, & Andrews, 2012). The measure can, however, be used in a dimensional way, examining levels of general psychological distress (Kessler et al., 2002). Scores on the scale have been shown to be reliable in a variety of contexts and cultures including primary care in New Mexico (Cronbach's alpha = .90; Terrez, Salcedo, Estrada, Romero, & Sotres, 2011) and primary care in the Netherlands utilizing a Dutch version of the scale (Cronbach's alpha = .90; Donker et al., 2010). In the CCHS 1.2 sample, the score reliability for the entire sample was Cronbach's alpha = .87; for the subsample used in this study (i.e., respondents meeting criteria for any disorder), the score reliability value was Cronbach's alpha = .89.

Types of Professionals Consulted for Mental Health Problems. The CCHS asked respondents whether they had consulted with any health professional about their emotional or mental health in the past 12 months. If so, they were asked to report the type of professional with whom they had consulted. Consultations with the following professional were included in the present study: family physician, psychologist, psychiatrist, nurse, social worker/counsellor/psychotherapist, other medical doctor. In the CCHS 1.2 psychotherapy was defined as having had a session of psychological counselling or therapy that lasted 15 minutes or longer with any of the above mentioned professionals.

12 Month Prevalence of any Mental Health Disorder. The Composite International Diagnostic Interview (CIDI) is a fully standardized diagnostic interview designed by the World Health Organization as part of the World Health Organization World Mental Health Survey Initiative (Kessler & Ustun, 2000). This instrument was designed to obtain information about the prevalence and correlates of mental disorders in the general population, unmet need for treatment of mental disorders, treatment adequacy among those receiving treatment for mental disorders, as well as the burden to society of mental disorders. Scores on the CIDI show acceptable to good diagnostic lifetime reliability for the disorders it assesses, with kappa coefficients ranging from .52-.86 (Wittchen, 1994). It also demonstrates good diagnostic validity when compared to individual semi-structured and unstructured diagnosis (Kessler & Ustun, 2000). For the purposes of this study, we used only the diagnostic data from the interview. The CCHS obtained data on the following diagnoses: Agoraphobia, Depression, Mania, Panic Disorder, Social Phobia, Alcohol Dependence/Abuse and Any Illicit Drug Dependence.

Out-of-Pocket Spending. The CCHS asked respondents to indicate, not including costs covered by insurance, how much money the respondent or the family spent on services and

products (i.e., visits with professionals, medications, tests and services associated with problems with emotions, mental health, or use of alcohol or drugs). Participants indicated an estimate which could range from $0 to $50,000 CAD.

Overnight Hospital Stay. The CCHS asked respondents to indicate, during the past twelve months, whether they were hospitalized overnight or longer for problems with emotions, mental health, or use of alcohol or drugs. Respondents were instructed to answer a "yes" or "no" response.

Satisfaction with Services. For each provider seen (i.e., psychiatrist, family doctor, other medical doctor, psychologist, nurse and/or social worker/counsellor/psychotherapist), the CCHS asked participants how satisfied they were with the treatments and services they received, using a Likert-type scale that ranged from 1 (very satisfied) to 5 (very dissatisfied). In order to account for the fact that participants could have received services from more than one of these providers, a mean score across providers was calculated from each participant.

Access to the data used in this project was approved by the Social Sciences and Humanities Research Council of Canada. As the analyses are based on a secondary data set provided by the federal government, no additional research ethics board approval was required.

Results

The SES/Social Determinants Model

Hierarchical and logistic regressions analyses were conducted to test the study hypotheses. Given the substantial skew observed in the data for both urban/rural location and ethnicity, these items were included in the model used in all analyses as control variables. Gender, age, distress, income, and education were entered next to examine main effects of these variables. Continuous variables were centered to allow for interactions to be investigated.

Interaction terms were created between education and income for each of gender, age, and distress and were entered as the final block of variables for each of the analyses.

Prior to conducting each regression analysis, the data were screened and, as described below, necessary transformations were applied and remaining outliers were removed. Statistics Canada has derived a weight to apply to all age groups and to the provinces and territories (Statistics Canada, 2002a). Bootstrapping analyses were conducted using the combination of this weight and bootstrapping weights. This allows for all results to be representative of the Canadian general population (Statistics Canada, 2002a).

Receiving Medication Treatment

A hierarchical regression was conducted with number of visits to any health care provider for psychotropic medication treatment for any mental disorder as the predicted variable and the SES/Social Determinants model as the predictor variables. Figure 1 describes the selection and elimination of respondents included in this analysis. A logarithmic transformation was used on number of visits to any professional for psychotropic medication treatment. Although both urban/rural location and ethnicity were heavily skewed, given that these are binary variables, no transformations were made and they were used strictly as control variables. Based on statistical considerations, no outliers were found; however, some respondents reported a very high number of consultations with any health care provider within a one year time frame. A break in the distribution of these data was evident in the 50-60 consultations per year range, thus data from respondents who reported more than 60 visits in a year to any medical health provider were eliminated. The total sample used was 269 participants, representing 161,188 people within the Canadian population after the application of appropriate weights and bootstrapping procedures.

Table 1 displays the standardized regression coefficients (β), the standard error (based on the bootstrapping weight) and ΔR^2, and total R^2, after entry of all predicted variables in the model. After controlling for urban/rural location and ethnicity, SES and the social determinant variables accounted for 9% of the variance in the prediction of number of consultations with any provider for medication service. Adding the interactions between SES and social determinants did not significantly increase the amount of variance accounted for. Although no individual item was significant within the model, the effects of the full model were statistically significant and accounted for approximately 15% of the variance in number services received from any health care provider when receiving psychotropic medication treatment for any mental health disorder, $R^2 = .15$, $F(14, 486) = 1.81$, $p = .03$.

Receiving Psychotherapy

The next analysis utilized hierarchical regression to test the SES/social determinants model in predicting the number of visits to any health care provider for the purpose of receiving psychotherapy for any mental disorder. Figure 2 describes the selection and elimination of participants included in this analysis. A logarithmic transformation was used on number of visits to any professional for psychotherapy treatment. Based on statistical considerations, no outliers were found; however, some respondents reported a very high number of visits to receive psychotherapy within a one year time frame. A break in the distribution of these data was evident and, to be consistent with the approach taken with the data for treatment with medication, all cases exceeding 60 visits in a year to any medical health provider were eliminated. The total sample used was 1,114 participants, representing 648,547 people within the Canadian population after the application of appropriate weights and bootstrapping procedures.

Table 2 displays the standardized regression coefficients (β), the standard error (based on the bootstrapping weight) and ΔR^2, and total R^2, after entry of all predicted variables in the model. After controlling for urban/rural location and ethnicity, SES and the social determinant variables accounted for an additional 2% of the variance, R^2 change = .02, $F(5, 499) = 2.96$, $p = .01$. As summarized in Table 2, within these main effects, both income and education were statistically significant, although income demonstrated an inverse relation with the number of times one met with a professional. Adding the interaction terms did not produce significant change in the variance accounted for, however, the model as a whole was statistically significant and accounted for 4% of the variance, $R^2 = .04$, $F(14, 486) = 1.91$, $p = .02$.

Out-of-Pocket Spending and Receiving Services

The third analysis employed hierarchical regression to determine whether the amount of out-of-pocket spending for any mental health service from any mental health provider improved the prediction of the number of visits to any health care provider for any mental health disorder beyond that afforded by the SES/social determinants model. Figure 3 describes the selection of participants included in this analysis. Logarithmic transformations were used on the total number of visits to any health professional for any mental health service, as well as total out-of-pocket spending. The total sample used was 669 participants, representing 406,087 people in the Canadian general population.

Table 3 displays the standardized regression coefficients (β), the standard error (based on the bootstrapping weight) and ΔR^2, and total R^2, after entry of all predicted variables in the model. After controlling for rural/urban location and ethnicity, SES and the social determinant variables accounted for an additional 6% of the variance, R^2change = .06, $F(5, 499) = 3.40$, $p = .005$. As summarized in Table 3, within these main effects, income, education, and distress were

statistically significant, although income demonstrated an inverse relationship with the number of times one met with any professional. Adding the interaction terms did not produce significant change in the variance accounted for. However, when out-of-pocket spending was entered into the regression, it accounted for 13% of the variance over and above the entire SES/social determinants model, R^2 change = .13, $F(1, 499) = 54.71$, $p < .001$. The model as a whole accounted for 21% of the variance in number of consultations with any health care provider for any mental health disorder, total $R^2 = .21$, $F(15, 485) = 8.30$, $p < .001$.

Overnight Hospital Stay

A hierarchical logistic regression analysis was performed to predict having at least one overnight hospital stay in the past 12 months due to mental health issues, using the SES/social determinants model as the predictors. Figure 4 describes the selection of participants included in this analysis. Variables used in this analysis had been used in the previous analyses thus, any necessary transformations were conducted based on evaluations of statistical assumptions. The analysis was performed using STATA, $n = 367$, representing 168,590 people within the Canadian general population. Table 4 displays the standard error (*SE),* odds ratios (*OR), p* - values and 95% confidence intervals (*CI*). The model as a whole, as well as each step was nonsignificant, thus the SES/social determinants model did not accurately distinguish those who received an overnight hospital stay for any mental health concern over the past year from those who did not.

Satisfaction with Services

The final analyses conducted were designed to examine whether the SES/social determinants model, as well as out-of-pocket spending, predicted overall satisfaction with services received for mental health treatment over the past year. A logarithmic transformation

was used on satisfaction with services. The total sample used was 1,468 participants, representing 857, 902 people within the Canadian general population after the application of appropriate weights and bootstrapping procedures.

First, a hierarchical regression was performed between satisfaction with visits to any health provider for any mental health concern as the predicted variable and the SES/Social determinants model as the predictor variables. Figure 5 describes the selection of participants included in this analysis. Table 5 displays the standardized regression coefficients (β), the standard error (based on the bootstrapping weight) and ΔR^2, and total R^2, after entry of all predicted variables in the model. After controlling for urban/rural location and ethnicity, the SES and social determinant variables accounted for an additional 8% of the variance, R^2change = .08, $F(5, 499) = 12.52$, $p < .001$. As summarized in Table 4, within these main effects, income, distress, gender, and age were statistically significant, although income demonstrated an inverse relation with satisfaction. Adding the interactions between SES and social determinants did not significantly increase the amount of variance accounted for, although the model as a whole accounted for 10% of the variance in satisfaction with services, total $R^2 = .10$, $F(14, 486) = 5.72$, $p < .001$.

The final analysis examined whether out-of-pocket spending would account for incremental variability in satisfaction with services over and above the SES/social determinants model. Figure 6 describes the selection of participants included in this analysis. The same analysis was run as above, but with a fourth step utilizing the logarithmically transformed out-of-pocket spending variable. The total sample used was 673 participants, representing 407,426 people within the Canadian general population after the application of appropriate weights and bootstrapping procedures.

Table 6 displays the standardized regression coefficients (β), the standard error (based on the bootstrapping weight) and ΔR^2, and total R^2, after entry of all predicted variables in the model. After controlling for urban/rural location and ethnicity, the SES and social determinant variables accounted for an additional 8% of the variance R^2 change = .08, $F(5, 499) = 5.80$, $p < .001$. As summarized in Table 5, within these main effects only distress was statistically significant, likely due to reduced power from a smaller sample size as result of only including those who reported out-of-pocket spending in the past year as well as satisfaction with services. Out-of-pocket spending accounted for 1% of the variance over and above the SES/social determinants model, R^2 change = .01, $F(1, 499) = 4.70$, $p = .03$. The model as a whole accounted for 13% of the variance in satisfaction with services in the past year, $R^2 = .13$, $F(15, 485) = 4.85$, $p < .001$.

Discussion

The purpose of this study was to examine whether SES (i.e., education and income), in combination with other social determinants (i.e., urban/rural location, ethnicity, gender, age) and psychological distress predicted the ability to receive mental health or substance dependence treatment (i.e., the number of visits to any healthcare provider for either medication or psychotherapy) and inpatient treatment (i.e., an overnight hospital stay) in the Canadian general population. It additionally examined whether out-of-pocket spending (i.e., all costs paid for that were not covered by either private or public insurance) was a predictor of receiving mental health or substance dependence treatment in Canada. Given that income is an estimate of one's resources with which to purchase a service, out-of-pocket spending may be a better measure of this ability. Finally, it examined whether SES/social determinants and out-of-pocket spending predicted overall satisfaction with services.

The results regarding receiving treatment, in general, supported the hypotheses that SES predicts the number of services received for both medication and psychotherapy from any provider. For medication treatment, no one variable significantly predicted the number of times survey respondents reported seeing any health care provider, however, the SES/social determinants model, as a whole, was significant and accounted for 15% of the variability in receiving medication treatment amongst those with a likely disorder. It is surprising and noteworthy that there were no moderation effects of SES on any other social determinant or psychological distress in this or any other analysis.

With respect to psychotherapy, income and education were the only significant predictors of the number of times one visited any mental health provider in a given year. Surprisingly, income was inversely related to the number of visits to any provider. Services provided by physicians, including psychotherapy, are covered by Canada's public health care, and therefore those unable to pay for psychotherapy in the private sector may be turning to a publically funded provider such as a family practitioner. This interpretation is further supported by the fact that the majority of mental health service utilization is through family practitioners (Vasiliadis et al., 2009).

The SES/social determinants model did not significantly predict hospitalization for mental health problems or substance dependence in the previous year. It is important to recognize, however, that not all mental disorders were included in this CCHS survey (e.g., schizophrenia was not included). Therefore it is likely that the number of people hospitalized in the past year due to mental health conditions is under-estimated in the CCHS data which, in turn, will affect the ability of any set of variables to accurately predict the experience of hospitalization.

One possible reason for this tremendous lack of variability in the data is the number of services received by respondents. Consistent with many other surveys of mental health service use, in this data set the mean and median with respect to number of visits to any health professional was zero, and the mode was one visit. The vast majority of those who seek mental health or substance dependence services will receive only one visit to a mental health provider. It is, therefore, likely that SES played a limited role in receipt of services because the majority of people are not receiving any services, and those who seek out treatment are only receiving very limited treatment. This would explain why many studies find SES, particularly income, to not be a significant factor in receiving mental health treatment (e.g., Steele et al., 2007). Such findings do not mean that the health care system is working, particularly in the realm of primary care (cf., Vasiliadis et al., 2009). Instead, it is likely the case that in population surveys, there is insufficient variability in the extent of services that respondents are receiving to be able to consistently detect the influence of variables that affect the receipt of these services.

Additional support for the impact of SES on receiving mental health and substance dependence treatment in Canada came from the analysis examining out-of-pocket spending as a predictor over and above the SES/social determinants model in receiving any form of mental health or substance dependence treatment from any provider. The main effects of income, education and distress were all significant predictors in receiving any treatment from any provider, but accounted for only 8% of the variability. When out-of-pocket spending was added to the model, not only did it account for 13% of the variance over and above the entire SES/social determinants model, but the model as a whole accounted for almost a quarter of the variability in receiving treatment (i.e., the number of times one is likely to visit any professional).

Obviously people at all economic strata of society have expenses, but the amount of money one has for out-of-pocket spending will, inevitably, be related to (and limited by) annual income. Although other factors will affect one's willingness to spend out-of-pocket for services (such as other life expenses and one's decision to place the costs of mental health services as a financial priority over and above those expenses), there is an inherent limit on how much money one will have available to implement that decision. Additionally, the more severe and debilitating a mental disorder is, the less likely one is to have additional funds for costs beyond one's necessities. For example, in Canada, in 2008, people with mental health conditions comprised over one-third of those whose primary source of income was social assistance and this number continues to rise (Canadian Mental Health Association, 2014b). Therefore, although some caution needs to be taken in interpreting these results, income is a determining factor in the availability of funds for out-of-pocket spending. Accordingly, the results of this study strongly indicate that income plays an important role in receiving any form of mental health or substance dependence treatment from any provider in Canada.

Finally, we sought to examine survey respondents' overall satisfaction with mental health services received in the past year. Income was directly related to satisfaction of services from any mental health provider. Including out-of-pocket spending to the model added a small, but significant improvement to the prediction of satisfaction, however it was associated with overall dissatisfaction, suggesting the more money spent out of pocket, the less satisfied people were with services. As with the other analyses in this study, the data were heavily skewed and needed to be logarithmically transformed, therefore some caution needs to be taken in all interpretations. It may be, however, that as more money is spent on treatment, people have increased expectations for results. Many mental health conditions are chronic, thus the goal of treatment is

often to manage the symptoms rather than to eliminate them. This can be a very difficult thing for many people to adjust to and may play a role in how satisfied people are with treatment outcomes. Additionally, the model as a whole only accounted for 13% of the variability in satisfaction, meaning that there are other influences that have not been investigated. Future research should examine other impacts on patient/client satisfaction with mental health services and treatment outcomes.

Overall this study adds to the literature by expanding the examination of SES on accessing mental health and substance dependence services from accessing a specific provider at least once, to examining whether it has an impact on the number of times one is able to access any provider for any form of treatment in a given year. Although education and income influenced some aspects of service utilization, by far the greatest predictor of receiving mental health treatment in Canada was out-of-pocket spending. This indicates that some aspect of family income does play an important role in accessing any mental health treatment in Canada. As with all studies utilizing the CCHS data set, it is important to remember that the data were all based on self-report. However, the main statistical limitation of this study is that the data regarding the number of visits to professionals were heavily skewed towards zero leaving very little variability amongst participants and limited options for analyzing the data. At a substantive level, however, this distribution of mental health care service use is perhaps one of the most important results that can be reported in a study such as this one. Most survey respondents who were likely to have a diagnosable mental disorder or substance dependency in the past year received no services. Of those who received services, most had only a single appointment with a health care provider. Regardless of the nature of the treatment, a single appointment is very unlikely to represent an adequate dose of treatment for a diagnosable mental health or substance dependence condition.

From these data it appears that Canadians may be receiving fewer mental health visits than people in other Western countries. For example, utilizing data from the National Comorbidity Survey Replication (NCS-R; *n* = 9,282) in the United States, Wang et al. (2005) found that in the past year respondents had received a median of 7.4 visits to mental health specialists and a median of 1.7 visits to health care providers in the general medical sector for mental health treatment. Additional research is needed to examine the reasons why so many in need are not receiving treatment. Clearly, though, Canada has a long way to go in terms of creating a truly universal healthcare system with respect to the 4.5 million people in Canada who will suffer a mental health disorder in their lifetime (Canadian Mental Health Association, 2014a).

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Table 1

Hierarchical Regression of SES/Social Determinants for Number of Visits for Medication (n = 269)

Step and predictor variable	β	*SE* β	R^2	ΔR^2
Step 1:			.02	
Rural/Urban	-.11	.08		
Ethnicity	.12	.11		
Step 2:			.09	.07
Gender	.01	.08		
Age (centered)	.00	.00		
Distress (centered)	.01	.00		
Education (centered)	.01	.02		
Income (centered)	-.02	.01		
Step 3:			.15*	.06
Education x Income	.01	.00		
Education x Age	.00	.00		
Income x Age	-.00	.00		
Education x Gender	.02	.03		
Income x Gender	-.05	.04		
Education x Distress	.00	.00		
Income x Distress	-.00	.00		

Note. * $p < .05$

Table 2

Hierarchical Regression of SES/Social Determinants for Number of Visits for Psychotherapy (n = 1,114)

Step and predictor variable	β	*SE* β	R^2	ΔR^2
Step 1:			.01	
Rural/Urban	-.12	.06		
Ethnicity	.02	.08		
Step 2:			.03*	.02*
Gender	.01	.04		
Age (centered)	-.00	.00		
Distress (centered)	.00	.00		
Education (centered)	.02*	.01		
Income (centered)	-.02*	.01		
Step 3:			.04*	.01
Education x Income	.00	.00		
Education x Age	-.00	.00		
Income x Age	.00	.00		
Education x Gender	-.03	.02		
Income x Gender	-.02	.02		
Education x Distress	.00	.00		
Income x Distress	-.00	.00		

Note. * $p < .05$

Table 3

Hierarchical Regression of SES/Social Determinants and Out-of-Pocket Spending for Number of Visit from any Provider (n = 669)

Step and predictor variable	β	*SE* β	R^2	ΔR^2
Step 1:			.02*	
Rural/Urban	-.19	.07		
Ethnicity	.03	.11		
Step 2:			.08**	.06**
Gender	-.05	.06		
Age (centered)	-.00	.00		
Distress (centered)	.01**	.00		
Education (centered)	.03*	.01		
Income (centered)	-.02*	.01		
Step 3:			.09*	.01
Education x Income	.00	.01		
Education x Age	.00	.00		
Income x Age	-.00	.00		
Education x Gender	.02	.03		
Income x Gender	-.03	.03		
Education x Distress	.00	.00		
Income x Distress	.00	.00		
Step 4:			.22**	.13***
Out-of-Pocket	.26***	.04		

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

Table 4

Hierarchical Logistic Regression of SES/Social Determinants for Overnight Hospital Stay (n = 367)

Step and predictor variable	*SE*	*OR*	*p*	95% CI
Step 1:			.11	
Rural/Urban	.71	1.02	.98	[.26, 4.06]
Ethnicity	3.14	4.41	.04	[1.09, 17.87]
Step 2:			.12	
Gender	.31	.89	.74	[.45, 1.76]
Age (centered)	.01	.98	.11	[.95, 1.00]
Distress (centered)	.02	1.04	.05	[.99, 1.08]
Education (centered)	.08	1.03	.69	[.88, 1.21]
Income (centered)	.07	.92	.23	[.80, 1.05]
Step 3:			.51	
Education x Income	.04	.96	.31	[.89, 1.03]
Education x Age	.01	1.00	.98	[.99, 1.01]
Income x Age	.01	.99	.33	[.98, 1.00]
Education x Gender	.17	.91	.61	[.63, 1.31]
Income x Gender	.14	.83	.28	[.60, 1.16]
Education x Distress	.01	1.00	.65	[.99, 1.02]
Income x Distress	.01	1.00	.76	[.99, 1.02]

Note. CI= confidence interval for odds ratio (*OR*).

Table 5

Hierarchical Regression of SES/Social Determinants for Satisfaction with Services (n = 1,468)

Step and predictor variable	β	*SE* β	R^2	ΔR^2
Step 1:			.00	
Rural/Urban	-.02	.03		
Ethnicity	.07	.03		
Step 2:			.08**	.08***
Gender	-.06**	.02		
Age (centered)	-.00*	.00		
Distress (centered)	.01***	.00		
Education (centered)	.00	.00		
Income (centered)	-.01*	.00		
Step 3:			.10***	.01
Education x Income	-.00	.00		
Education x Age	.00	.00		
Income x Age	.00	.00		
Education x Gender	.01	.01		
Income x Gender	0.01	.01		
Education x Distress	.00	.00		
Income x Distress	.00	.00		

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

Table 6

Hierarchical Regression of Out-of-Pocket Spending for Satisfaction with Services (n = 673)

Step and predictor variable	β	*SE* β	R^2	ΔR^2
Step 1:			.01	
Rural/Urban	-.06	.04		
Ethnicity	.07	.05		
Step 2:			.09***	.08***
Gender	-.06	.04		
Age (centered)	-.00	.00		
Distress (centered)	.01***	.00		
Education (centered)	-.00	.01		
Income (centered)	-.01	.01		
Step 3:			.12***	.03
Education x Income	.00	.00		
Education x Age	.00	.00		
Income x Age	.00	.00		
Education x Gender	.02	.02		
Income x Gender	-.02	.01		
Education x Distress	.00	.00		
Income x Distress	.00	.00		
Step 4:			.13***	.01*
Out-of-Pocket	.05*	.02		

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

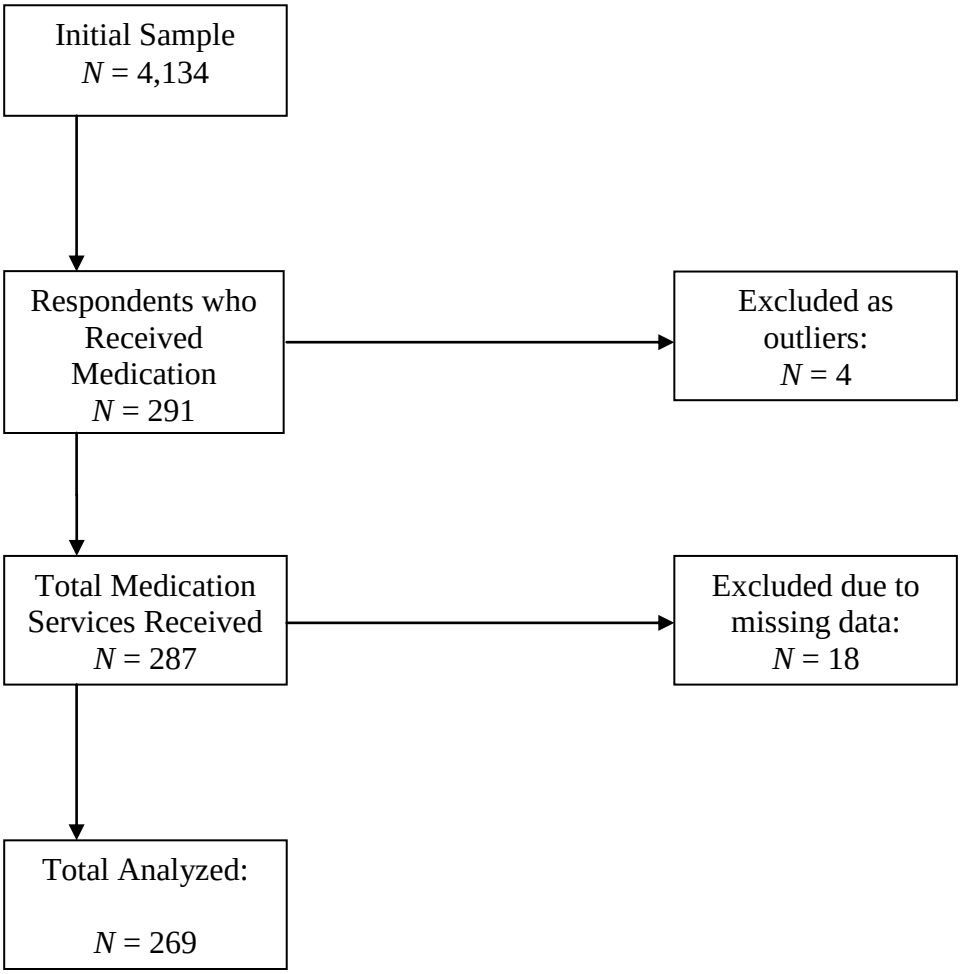

Figure 1. Selection of Respondents For Analysis in Study 1: Total Medication Services Received.

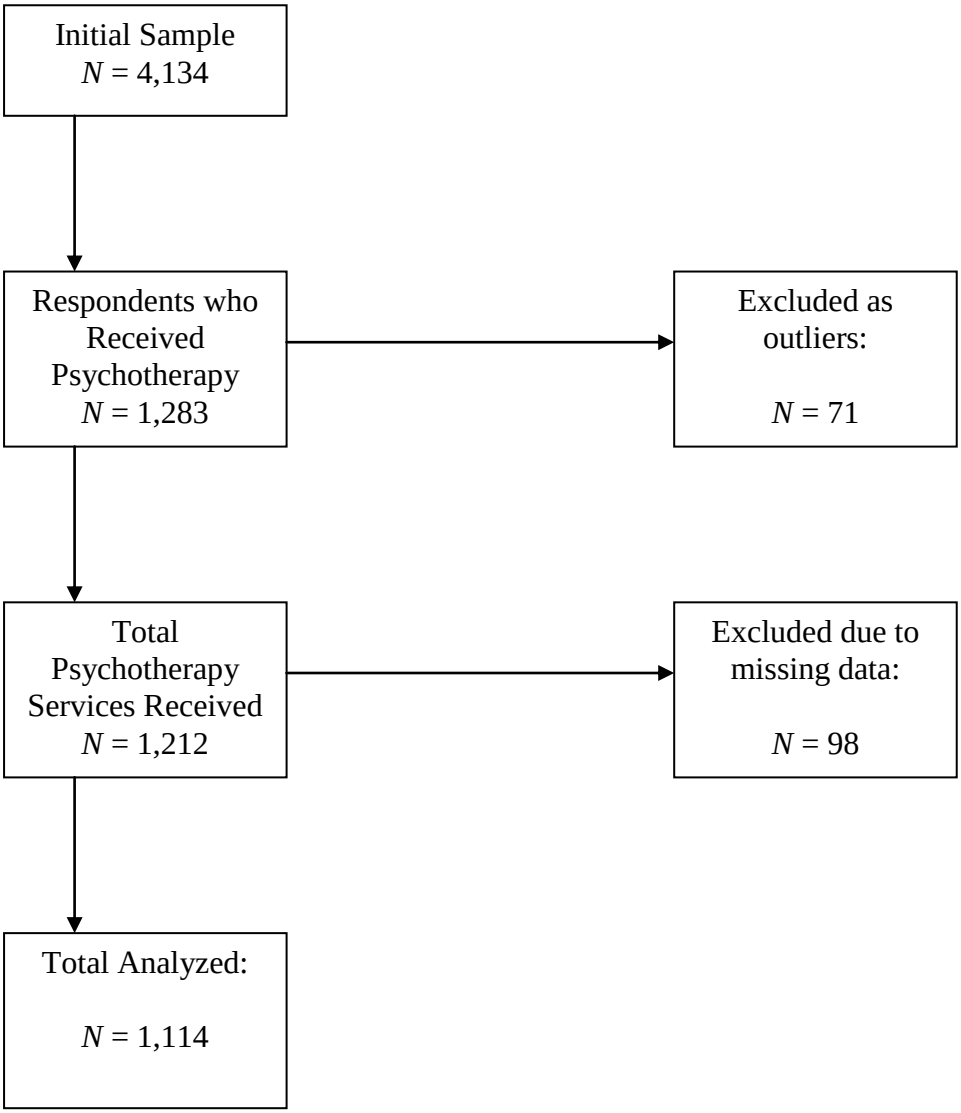

Figure 2. Selection of Respondents for Analyses in Study 1: Total Psychotherapy Services Received.

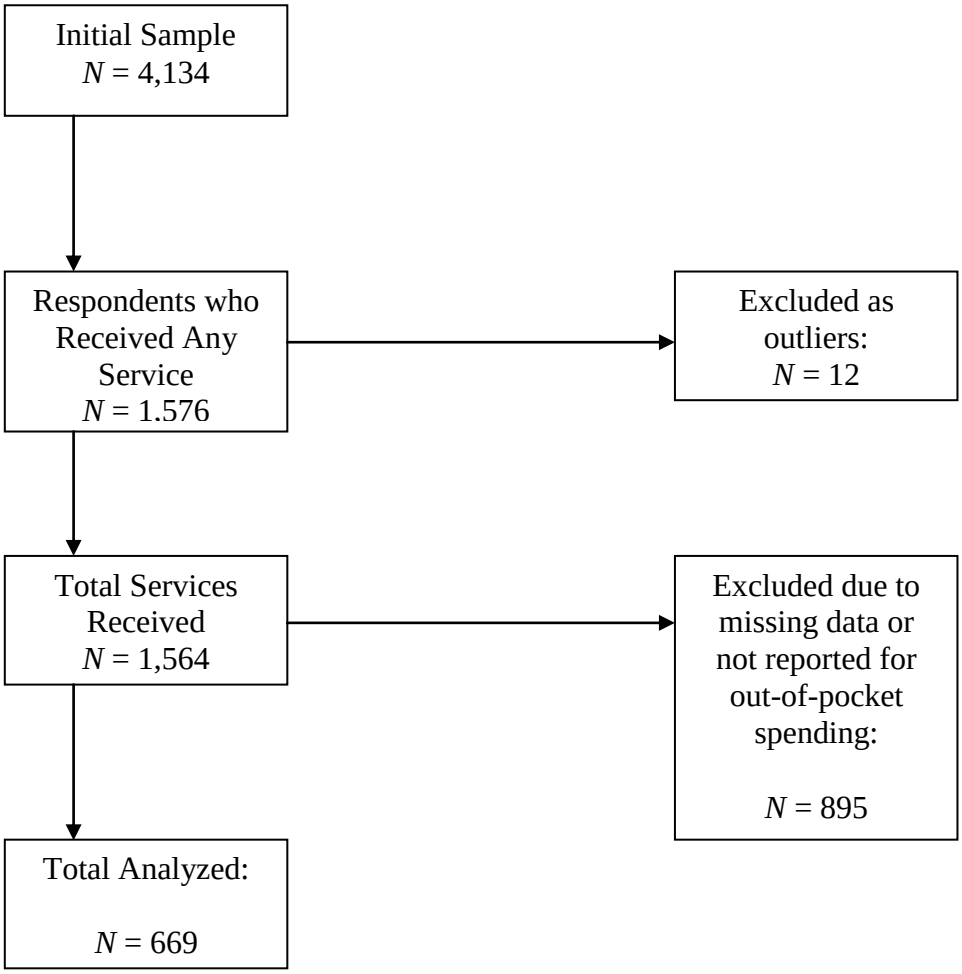

Figure 3. Selection of Respondents for Analysis in Study 1: Out-of-Pocket Spending

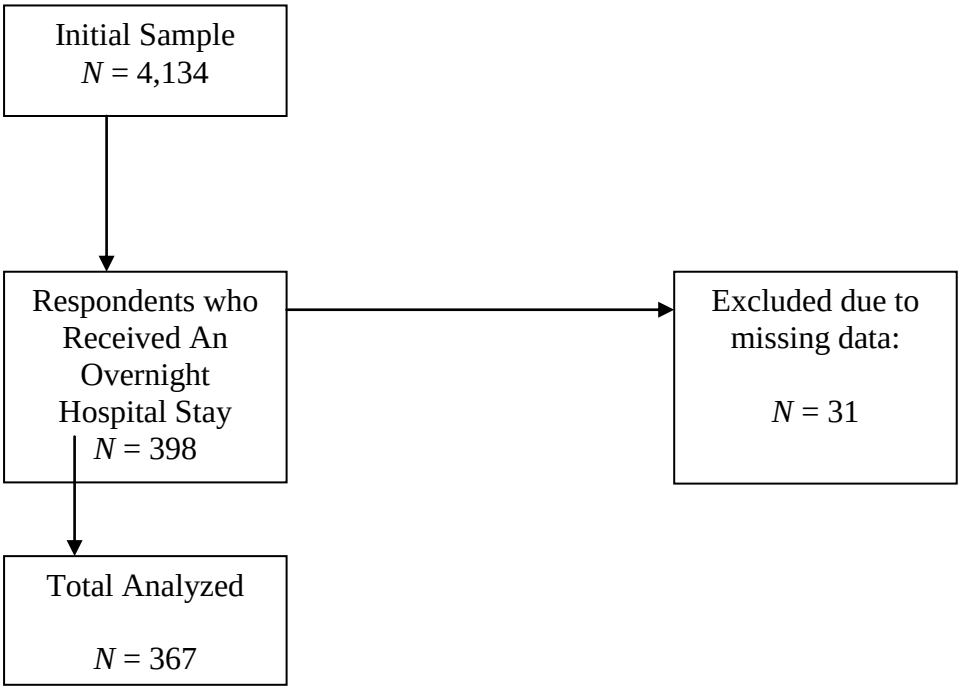

Figure 4. Selection of Respondents for Analyses in Study 1: SES Predicting Overnight Hospital Stay.

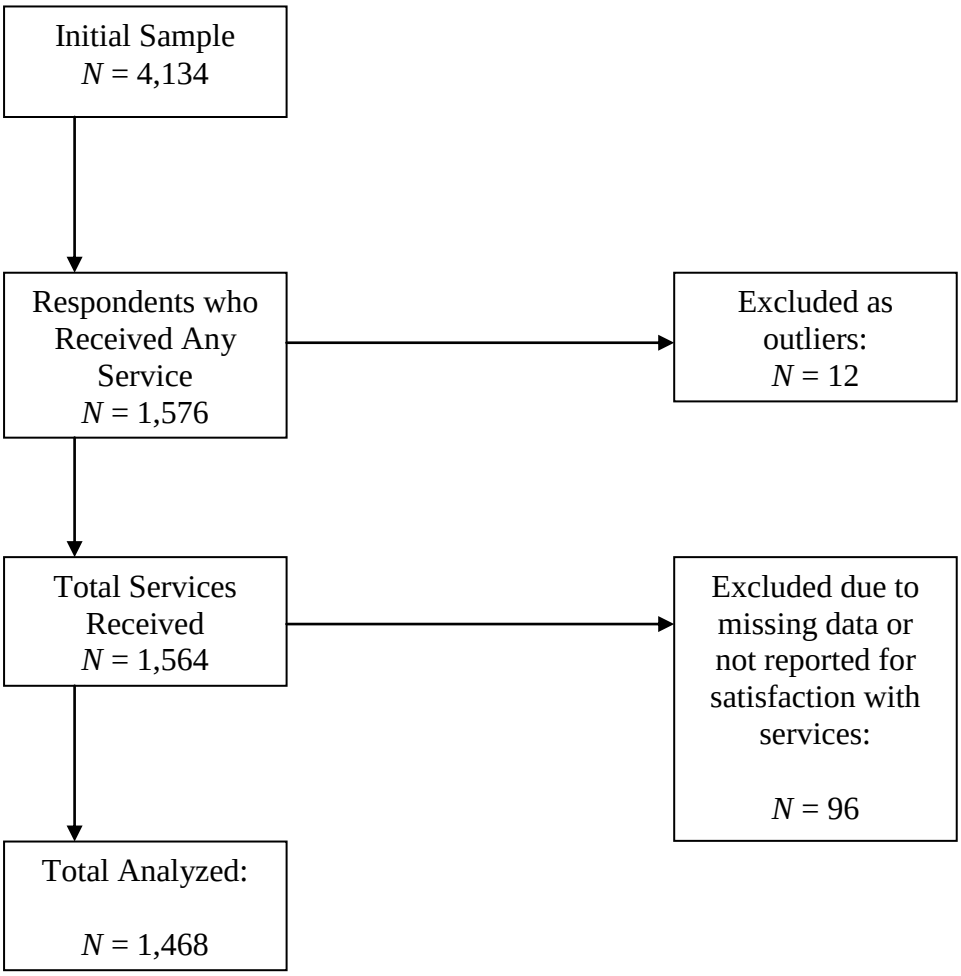

Figure 5. Selection of Respondents for Analysis in Study 1: SES Predicting Satisfaction with Services.

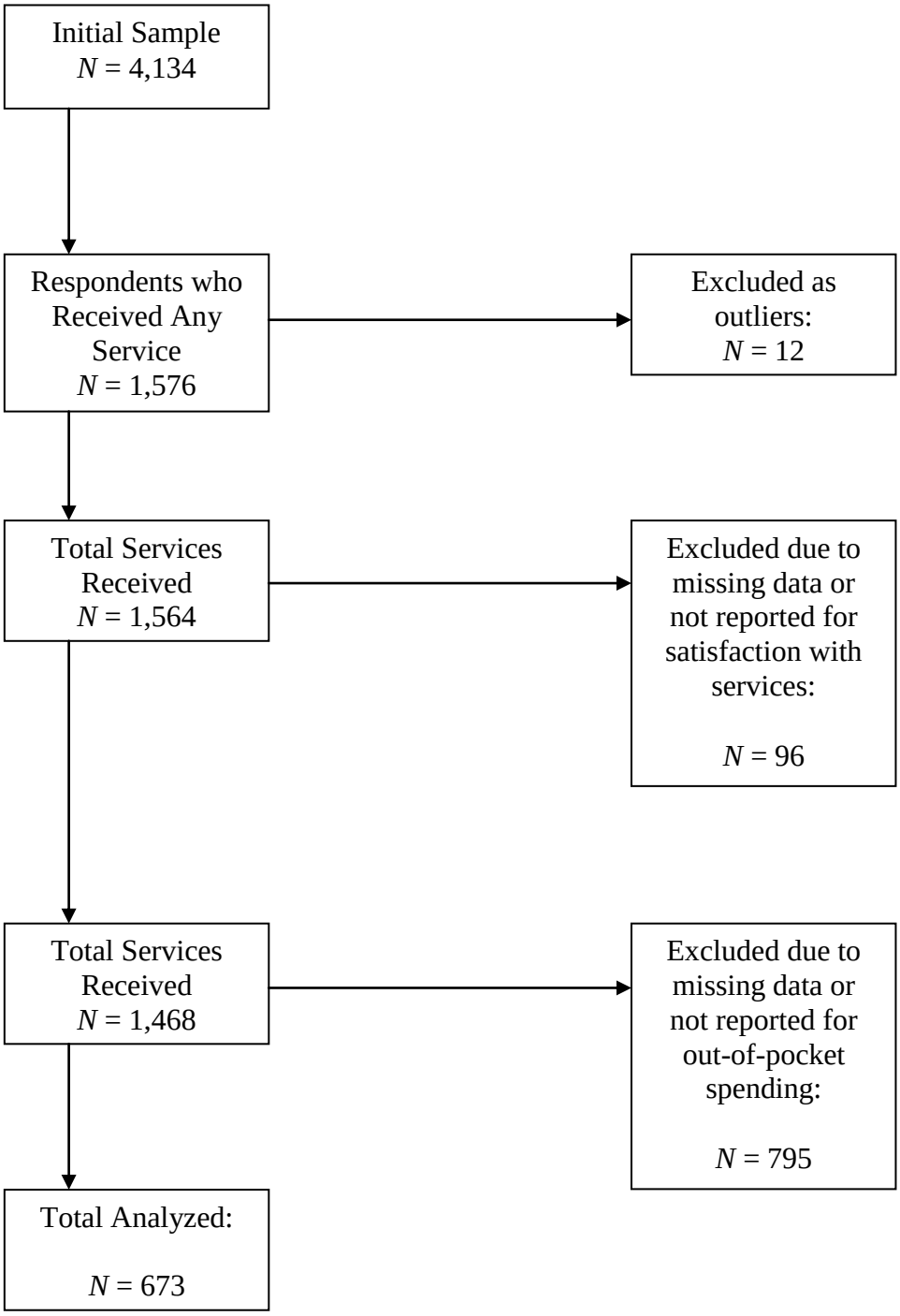

Figure 6. Selection of Respondents for Analysis in Study 1: Out-of-Pocket Spending Predicting Satisfaction with Services.

CHAPTER 3

Evaluating the Measurement of Mental Health Service Accessibility, Acceptability, and Availability in the Canadian Community Health Survey

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Abstract

Given the under-utilization of mental health services by those with mental health problems, growing attention has focused on barriers to utilizing services. Several researchers have used the Canadian Community Health Survey (CCHS) cycle 1.2 dataset, including measures of barriers due to accessibility, acceptability, and availability, to explore the gap between mental health service need and use. As the psychometric properties of these barrier measures have not be evaluated, the reliability and validity of the three measures were examined in the present study. Confirmatory factor analyses were conducted using data from CCHS participants who had indicated unmet need regarding information on mental illness and its treatments, availability of services, medication, and psychotherapy/counselling (n = 353), as well as the full sample of participants reporting any unmet need in the past year (n = 1,784). The hypothesized three factor model (i.e., accessibility, acceptability, and availability) failed to converge with both samples. Exploratory factor analysis was conducted using data from the full sample (n = 1,784) and a possible two factor solution was obtained. Reliability analyses on this two factor model, as well as the three factor model included in the CCHS, demonstrated that internal consistency values failed to attain acceptable levels of reliability (i.e., $\alpha < .70$). Based on these analyses, these barrier measures are neither reliable nor valid. These measures should not be used to examine barriers to service within the CCHS 1.2 dataset and caution should be exercised in interpreting the findings of studies that used these measures.

Evaluating the Measurement of Mental Health Service Accessibility, Acceptability, and Availability in the Canadian Community Health Survey

Introduction

With the implementation of the Canada Health Act (CHA) in 1984, the Canadian health care system is required to guarantee equal access to all health services deemed to be "necessary" that are provided in a hospital, or by physicians (Canada Health Act, s. 2). However, it is estimated that two-thirds of Canadians with a mental disorder do not receive mental health services (Tempier, et al., 2009). Given the enormous personal and economic costs associated with mental disorders (Hunsley, 2003), the extent to which these disorders go untreated is a major societal problem. To address this issue, researchers have turned to theoretical models of health care use (including Andersen's [1995] model involving predisposing, enabling, and need factors to account for health care use) and to examinations of the barriers to care, such as accessibility, acceptability, and availability (Penchanksy & Thomas, 1981; Stefl & Prosperi, 1985). Although terms such as these have been used for decades in government policies relevant to health care utilization, there is no consensus on their definitions (cf. Gulliford et al., 2002; Oliver & Mossialos, 2004; Penchansky & Thomas, 1981). For example, several researchers have argued that various combinations of acceptability and availability are actually part of the definition of accessibility rather than being independent constructs (e.g., Gulliford et al., 2002; Penchansky & Thomas, 1981). Developing a tool that could accurately define and measure these mental health service constructs has the potential to greatly inform public health policy.

The Canadian Community Health Survey (CCHS) cycle 1.2, Mental Health and Well-being, a national, cross-sectional survey of respondents aged 15 and over, was designed to assess the utilization of mental health services and the perceived need for these services (Statistics

Canada, 2004). A key goal for this survey was to provide accurate data that could aid in development of public policy (Statistics Canada, 2004). Utilizing advanced sampling and weighting techniques, the survey sample (N = 36,984) represents the Canadian general population and provides data for researchers and policymakers to assess a "snapshot" view of the mental health of Canadians and the mental health system. Some survey questions required participants to provide information about what prevented them from receiving services that they identified as needing. This involved selecting from 12 barrier options ranging from “preferred to manage yourself” to “personal or family responsibilities.” In the CCHS 1.2 database, these 12 variables are grouped into 3 categories intended to correspond to the constructs of accessibility, acceptability, and availability of mental health services in Canada (see Table 1). Researchers have used these measures from the CCHS 1.2 to examine mental health service utilization, sometimes using them as key constructs for testing utilization models (Nelson & Park, 2006; Steele, Dewa, & Lee, 2007; Vasiliadis, Tempier, Lesage, & Kates, 2009; Wang, 2006).

Previous CCHS Research on Accessibility, Acceptability and Availability

Canadian researchers have also used findings from this dataset to make policy recommendations related to the constructs of accessibility, acceptability and availability. For example, Wang (2006) examined barriers to mental health service utilization amongst those with any mental disorder, including substance dependence, in the past 12 months (n = 4,134) and found that self-reported barriers due to acceptability were greater than self-reported barriers due to accessibility or availability. Restricting the sample to respondents with an anxiety and/or affective disorder in the past 12 months (n = 3,101), Steele et al. (2007) examined barriers with respect to a respondent's socioeconomic status. Similar to results reported by Wang (2006), the greatest number of those surveyed reported barriers due to acceptability (16%). Both authors

concluded that barriers related to accessibility (such as income) are less of an issue for most Canadians due to Canada's universal health coverage and focus needs to be placed on the delivery of acceptable mental health treatments.

Using data from the Canadian province of Ontario (n = 13,184), Nelson and Park (2006) expanded the previous research by examining their association with factors such as socio-demographic, social support, health status, and mental health service use. They found that, overall, social support factors were associated with barriers of acceptability. As a result, they concluded that barriers of acceptability include a social context and recommended a focus on stigma and increased public education. Vasiliadis et al. (2009) further expanded the research by examining the barriers of accessibility, acceptability, and availability within the broader framework of Andersen's (1995) behavioural model of care seeking, specifically as need factors. Utilizing the full sample of participants aged 18 and older, (N = 35,236), the authors found that self-reported income was not associated with either the perceived barriers of accessibility or acceptability. Overall, need factors were the strongest predictors of receiving services from a psychiatrist and family practitioner. Vasiliadis et al., although recognizing there were still gaps in service utilization, viewed the overall results as positive given that need factors were the strongest predictors of receiving services from a psychiatrist and family practitioner.

Based on these studies, it appears that the greatest perceived barriers to receiving help are those related to acceptability (Nelson & Park, 2006; Steele et al., 2007; Wang, 2006). The question of acceptability has been interpreted in various ways by researchers, such as the public questioning the effectiveness of treatment (cf. Nelson & Park, 2006; Wang, 2006), an indication of stigma (cf. Nelson & Park, 2006; Vasiliadis et al., 2009), and an indication of a possible need to increase outreach programs and/or education targeting specific populations (cf. Nelson &

Park, 2006; Steele, et al., 2007; Vasiliadis, 2009). However, it is premature to draw conclusions such as these without first understanding what each of these constructs mean and whether they have been adequately measured in the CCHS dataset. The goal of this paper, therefore, is to examine the construct validity and reliability of the barrier measures of accessibility, acceptability, and availability in order to ensure the scientific quality of a nationally generated dataset being used in policy development.

CCHS 1.2 Survey

Although the CCHS 1.2 dataset was designed to inform public policy, its accuracy and validity rests on two key research elements: the sampling design and the measures within the survey. The sampling design follows the state-of-the-science requirements for population surveys. The CCHS 1.2 dataset sampled Canadians aged 15 and older across the 10 provinces and represents 98% of the population living in Canada. The survey obtained a sample of 36,984 respondents in order to achieve reliable, provincial level estimates. Sampling weights were devised in order to generalize results from the sample to the Canadian general population, and bootstrapping weights were created to estimate robust standard errors and confidence intervals. Therefore, with respect to the first key element in determining accuracy and validity, the CCHS 1.2 dataset provides some of the highest quality sampling designs available.

With respect to the second important aspect of the dataset's validity, that of its measures, there are some concerns. Although there are some measures within the survey that have demonstrated reliability in previous research, such as the Composite International Diagnostic Interview (Kessler & Ustun, 2004) and the Kessler distress scales (Kessler et al., 2002), many of the survey variables are assessed with single item responses. Their reliability and validity, therefore, rests upon the extent to which the precise wording of an item has fully captured the

intended underlying construct and is correctly interpreted by each respondent. Although it could be argued that the items used to assess the service barriers represent an index, rather than a scale (cf. Streiner, 2003), the items have been combined in the dataset to specifically assess the latent constructs of accessibility, acceptability, and availability. As a result, the summary scores for these constructs are essentially scales and, as such, must be evaluated with respect to their psychometric properties, including scale reliability and factorial validity (for an example of this requirement with other measures, see Holm & Holroyd, 1992).

Reliability is important to examine in any measure, as any evaluation will inherently have error in its ability to assess a construct. Reliability analyses allow for determining the likely accuracy of the scores obtained on a measure as compared to the amount of random error included in the scores. A reliability estimate is not a characteristic of a measure, it is a property of scores obtained when a measure is used in a certain way with a particular sample (Haynes, Smith, & Hunsley, 2011). Reliability has an impact on the upper limit of the validity of data from an instrument; if scores on an instrument are not reliable, it reduces the potential to accurately measure its construct. One of the most common methods of estimating reliability is with Cronbach's alpha (i.e., internal consistency reliability). Information from internal consistency estimates can be used to establish the confidence intervals around each score obtained by a participant on a given measure, thus indicating the likely range in which the participant's true score lies. To our knowledge, no reliability estimates have been published for the measures of the accessibility, acceptability, and availability constructs in the CCHS 1.2 dataset.

Similarly, no evidence, to our knowledge, has been published to support the construct validity of these three measures. Confirmatory factor analysis (CFA) is a statistical analysis that tests a proposed theory of latent variables by examining the relations amongst the observed

grouped variables (Tabachnick & Fidell, 2007). In light of the measurement structure proposed in the CCHS 1.2 dataset for the constructs of accessibility, acceptability, and availability, evidence that CFA yields results consistent with the hypothesized factors would provide strong initial evidence of factorial validity, a key element of overall construct validity.

Given that the CCHS 1.2 survey was conducted to inform public health care policy, it is essential that the data generated from the survey are of the highest scientific quality. Although the sampling techniques of the survey are certainly of the highest quality, the measurement of the perceived barriers to service has been neither examined nor reported. Accordingly, in this study we examine (a) the construct validity of the measures of acceptability, accessibility and availability by evaluating the factor structure of the scales and (b) the reliability of the scores obtained with these scales with the sample of CCHS 1.2 respondents who had an unmet need for mental health service in the past 12 months. The results of these analyses will allow us to determine the extent to which the survey data fit the hypothesized measurement model suggested by Statistics Canada (2002b).

Methods

Participants and Procedure

The current study uses data from the CCHS 1.2 respondents of all ages (i.e., $\geq$15 years) who indicated any unmet need in the past 12 months (n = 1,784), and a subgroup of this sample who reported an unmet need regarding information about mental illness and its treatments, information on availability of services, medication, or therapy/counselling (n = 353). To date, all prior research utilizing this database has examined any self-reported unmet need as indicative of need regarding mental health services; however, five of the possible nine options provided to

participants are not necessarily related to mental health concerns (e.g., help with financial, housing or personal relationship problems; help with employment status or "other" help).

Measures

Barriers to Mental Health Care Services for Unmet Needs. The CCHS asked respondents whether there was ever a time in the last 12 months when they felt that they needed help for their emotions, mental health or use of alcohol or drugs, but did not receive it. If so, they were asked to indicate the type of help that they felt they needed, and asked to identify one of twelve possible barriers (all answered in a yes/no format) that prevented the help from being received (see Table 1). Accessibility was measured with two items, acceptability with seven items, and availability with three items.

Results

Confirmatory Factor Analysis

As the data in the measures are binary, linear structural relations (LISREL) software and a weighted least squares model was used, based on a polychoric correlation matrix (Albright & Parks, 2009), to test the three factor model developed by Statistics Canada. The model represented the hypothesis that the barrier items of unmet need are influenced by three factors (accessibility, acceptability and availability). As the three factor model was already specified by Statistics Canada, a confirmatory factor analysis (CFA) was the appropriate analysis to evaluate the proposed three factor structure of this model. In order to test the factor structure, CFA examines how well each variable loads onto the hypothesized factor (i.e., convergent validity) and utilizes fit indices to examine how well the model fits or reproduces the data. The hypothesis that unmet need is influenced by a three factor model was rejected in our analyses, as the proposed model failed to converge (i.e., after multiple iterations, the variables did not load onto

the hypothesized factor structures). The three factor structure model of accessibility, acceptability, and availability, therefore, does not fit the observed data based on responses from participants reporting unmet need in the past 12 months regarding information on mental illness and its treatments, availability of services, medication, and psychotherapy/counselling (n = 353).

In order to maximize power, the CFA was run a second time, including all participants who indicated any unmet need in the past 12 months (i.e., not just those reporting unmet need regarding mental health information and services; n = 1,784). Once again the hypothesis that unmet need is influenced by a three factor model was rejected, as the model failed to converge.

Exploratory Factor Analysis

Given the lack of fit between the hypothesized model and the observed data, the next step was to investigate whether an alternative model exists that might fit the data. In order to maximize power, the decision was made to utilize the survey subsample of the 1,784 participants who reported any unmet need in the prior 12 months to participating in the survey. An exploratory factor analysis with varimax rotation was performed through SPSS on the 12 items from the self-reported unmet need items in the CCHS 1.2 dataset.

Using principal axis factoring, two factors were extracted that appeared to be related to the constructs of accessibility and availability. The decision to extract and rotate two factors was largely based on a consideration of the eigenvalues of the unrotated factors. The eigenvalues for the first two factors were, 1.8 and 1.3, respectively, with all other factors having eigenvalues lower than 1.1. Variables, however, were not well defined by this factor solution, as the total amount of explained variance was 12.6 % and communality values tended to be low (i.e., all values were less than .35). Utilizing .45 for inclusion of a variable in the interpretation of a factor (considered to be a fair measure of a factor and representing 20% overlapping variance; cf.

Tabachnick & Fidell, 2007), 10 of 12 variables did not load onto any factor, as seen in Table 2. Failure of so many variables to load on a factor reflects considerable heterogeneity of the items self-reported as barriers to unmet need. The bottom line is that the EFA did not provide any evidence of an underlying factor structure that even remotely corresponded to accessibility, availability, and acceptability. Reducing the criterion to a cut-off of .32 for inclusion (considered to be, at best, a poor measure of a factor and representing only 10% of overlapping variance; cf. Tabachnick & Fidell, 2007) 6 of 12 variables did not load onto any factor (as seen in Table 2) and, again, there was no indication of an acceptability factor.

Internal Consistency Reliability

The analyses thus far indicate that there is no discernible factor structure underlying the 12 barrier items. However, as these items have been used to create scales in previous research, we decided to examine what the reliability of these scales might be in the CCHS dataset. Follow-up reliability analysis (i.e., internal consistency estimates) were conducted on the two factor structure extracted from the EFA using the .32 factor loading criterion, as well as the three factor structure proposed by Statistics Canada. A criterion of .70 was set as an indication of acceptable reliability for these analyses (Hunsley & Mash 2008).

Regarding the three factor structure proposed for the CCHS 1.2 survey, utilizing the full sample (n = 1,784) none of the three met standards for acceptable reliability estimates (accessibility factor Cronbach's alpha = .45; acceptability factor Cronbach's alpha = -.06; availability factor Cronbach's alpha = .33). Regarding the two factor structure obtained via EFA, reliability analyses suggested neither the accessibility factor (Cronbach's alpha = .47) nor the availability factor (Cronbach's alpha = .33) were adequately reliable.

Too few items in a scale can reduce the reliability of the resulting scores on the scale. Therefore, as a last step to determine whether these scales have the potential to produce reliable scores, the Spearman-Brown Prophecy formula was applied to each factor to examine possible reliability outcomes if one were to double and then triple the number of similar items loadings on each factor. With respect to the two-factor structure produced by the EFA, doubling and then tripling the number of similar items on the accessibility factor produced results of poor to adequate reliability (Cronbach's alpha = .64 and .73, respectively). This means that to obtain reliable scores, the accessibility factor would need to have 9 items. Applying the same formula to the availability factor continued to produce unreliable results (Cronbach's alpha = .49 and .59, respectively). In order to reach an adequate reliability of .70 for the availability factor, one would need to have approximately 5 times the number of similar items within the scale (i.e., 15 items). As for the three factor structure proposed by Statistics Canada, the reliability of scores with the acceptability scale were so poor that it would not be possible to obtain scores of adequate reliability by adding more items. To obtain adequately reliable scores with the accessibility and availability scales, 6 and 15 items, respectively, would be required.

Discussion

This study aimed to examine the construct (factorial) validity and reliability of the three-factor structure in the CCHS 1.2 Mental Health and Well-being dataset, suggested for use by Statistics Canada to represent barriers to mental health treatment in the Canadian general population. The results indicate that the three-factor accessibility, acceptability, and availability model in the CCHS dataset is neither reliable nor valid, and therefore is unlikely to be measuring the constructs it is intended to measure. Although significant results have been found utilizing this model or incorporating it into other models (e.g., Nelson & Park, 2006; Steele, et al., 2007;

Vasiliadis, et al., 2009; Wang, 2006), the very low reliability of the scores on the scales used to measure the model means that these results may well be due to measurement and/or statistical error. Even if the results are not due to error, it is unlikely that the findings reflect anything about accessibility, acceptability, or availability. Researchers wishing to examine barriers to mental health service use in the CCHS dataset would be well-advised to forego the use of the three scales to measure barriers and, instead, use each of the 12 items as independent causal indicators of an index measuring potential barriers to receiving treatment (cf. Streiner, 2003).

Given the potential policy implications associated with interpreting the results of analyses conducted on datasets such as the CCHS, the importance of ensuring that the barrier/unmet need models being developed and used have appropriate psychometric properties cannot be stressed enough. High quality sampling strategies and high quality measures are both needed when drawing research-based policy implications. Our findings lead to the recommendations that items of self-reported unmet need in the CCHS 1.2 be treated as independent items of an index and that future CCHS (and similar) surveys refrain from combining data into measures without first examining the psychometric properties. Treating these items as separate indicators of barriers to perceived needs, rather than as components of superordinate constructs, will reduce the likelihood of the misinterpretation of results. For example, the term acceptability has been interpreted as referring to issues of stigma (e.g., Nelson & Park 2006; Stefle & Prosperi, 1985), however it can also be interpreted as referring to issues of ineffective treatment or dissatisfaction with treatment (e.g., Penchansky, & Thomas, 1981; Wang, 2006). Such differences in interpretation will be greatly diminished if researchers rely on the single items of perceived need included in the CCHS data. Future research should re-examine

the nature of these barriers when treated as separate, individual causal indicators of barriers to receiving needed services.

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Table 1

Questionnaire Items Used to Measure Accessibility, Acceptability, and Availability Barriers in the CCHS 1.2 Survey

Scale	Questionnaire Items (Yes/No Response)
Accessibility	Couldn't afford to pay
	Problems with things like transportation, childcare or scheduling
Acceptability	Preferred to manage yourself
	Didn't think anything more could help
	Didn't know how or where to get help
	Afraid to ask for help or of what others would think
	Didn't get around to it/didn't bother Language problems
	Personal or family responsibilities
Availability	Professional help not available in the area
	Professional help not available at the time required (e.g., doctor on holidays, inconvenient hours)
	Waiting time too long

Table 2

Summary of Factor Loadings for Varimax-Rotated Two Factor Structure

Item	Factor 1 (Accessibility)	Factor 2 (Availability)
No help/transport/childcare	.**56**	.21
Could not afford to pay	.**48**	.12
Family responsibilities	.39	.09
Afraid to ask for help	.28	-.05
Did not know where to go	.23	.01
Did not get around to it	.08	-.06
Thought nothing could help	.08	-.02
Language problems	-.01	.00
Professional unavailable	-.10	.**51**
Waiting time too long	.10	.35
Professional unavailable in area	.12	.32
Preferred to manage oneself	-.04	-.29

Note: N = 1,784. Factor loadings over .45 appear in bold.

CHAPTER 4

The Role of Socioeconomic Status and Social Determinants in Predicting Barriers to Mental Health Care in Canada

Abstract

We used data from the Canadian Community Health Survey, cycle 1.2 to examine socioeconomic status (i.e., education and income), other social determinants, and psychological distress to predict whether respondents (n = 33,159) endorsed any unmet mental health-related need. We additionally examined the role these variables played in encountering mental health service barriers (n = 1,633). Education predicted encountering an unmet need, recognizing a problem and seeking help; income was predictive of receiving help in a timely manner. Implications are discussed for Canadian health care policy and for the design of national health surveys dealing with barriers to mental health services.

Keywords: barriers to mental health services, socioeconomic status, social determinants

The Role of Socioeconomic Status and Social Determinants in Predicting Barriers to Mental Health Care in Canada

Introduction

Access to mental health services is a worldwide problem. According to the World Health Organization (WHO), 35.5% - 50.3% of people with a mental disorder in developed countries, and 76.3% - 85.4% of people with a mental disorder in less-developed countries, do not receive any treatment (WHO World Mental Health Survey Consortium, 2004). Consistent with these estimates, only one-third of Canadians with a mental disorder, and slightly less than one-half of Australians with a mental disorder, are receiving treatment (Tempier et al., 2009). In the United States, amongst those with depression, Vasiliadis, Lesage, Adair, Wang, and Kessler (2007) found service utilization to vary from 36.5% to 55.7%, with the range in utilization depending largely on whether individuals had insurance coverage.

Obviously the extent to which mental health services are available will have a great impact on the number of people who actually receive such services. However availability, per se, is clearly not the sole determinant in receiving services. In the United Kingdom, a recent survey discovered that, despite the efforts of the Improving Access to Psychological Therapies (IAPT) program (a government funded program designed to provide psychotherapy to those suffering from anxiety and depression), only half of the people referred for services actually entered treatment (Wise, 2014). Likewise, in both the United States and Canada studies have shown that, even if a person books an initial appointment for psychotherapeutic services, actually attending the appointment and then receiving a course of treatment are distinctly separate steps in the process of seeking psychotherapy (Elliott, Westmacott, Hunsley, Rumstein-McKean, & Best, 2014; Saunders, 1993).

In the Canadian context, several researchers using data from the Canadian Community Health Survey (CCHS; cycle 1.2 Mental Health and Wellbeing) have examined possible barriers to receiving mental health services (e.g., Nelson & Park, 2006; Steele, Dewa, & Lee, 2007; Vasiliadis, Tempier, Lesage, & Kates, 2009; Wang, 2006). For example, Wang (2006) examined barriers to mental health service with a focus on identifying clinical factors that influenced reports of experiencing barriers of accessibility, acceptability, and availability amongst respondents with any depressive, anxiety, or substance-related disorder in the past 12 months (*n* = 4,134). She found that those utilizing mental health services reported greater perceived unmet need regarding information about mental illness and its treatments, availability of services, medication, psychotherapy/counselling, financial problems, housing problems, personal relationship problems, and employment status than those not utilizing mental health services in the past 12 months. Additionally, she found that those with comorbid mental disorders were almost three times more likely than those suffering from one disorder to report experiencing any form of barrier (i.e., barriers of accessibility, acceptability or availability) and more than two times more likely to report a barrier due to acceptability alone. Similarly, Nelson and Park (2006) examined the role of socio-demographic factors, social support, health status, and mental health service use in predicting the reporting of the barriers of accessibility, acceptability and availability when seeking mental health services. Within the Canadian province of Ontario (*n* = 13,184), those who had sought services in the previous year were three times more likely than other respondents to endorse any unmet need. Regarding the barriers of accessibility, acceptability, and availability, women were almost twice as likely as men to report barriers of acceptability and younger adults were more likely than middle-aged and older adults to report barriers of acceptability and accessibility. Overall, social support factors were associated with

barriers of acceptability, such that those reporting lower levels of affection and emotional support were more likely to report barriers of acceptability in receiving mental health treatment. The authors concluded that, given their findings, an understanding of barriers, especially the barrier of acceptability, must consider the social context of those seeking services.

There has been some debate about the influence of socioeconomic status (SES; i.e., education and income) with respect to the accessibility of mental health services. For example, income has been inconsistently associated with accessing these services: Starkes et al. (2005) and Vasiliadis et al. (2009) did not find associations between income and accessing mental health services in Canada, whereas Alegria et al. (2000) found that income (a) was positively related to receiving specialist care in the United States, (b) had a U-shaped relation in the Netherlands, with those in the middle income bracket least likely to receive specialist services, and (c) had no statistically significant association with access in the Canadian province of Ontario. However, Elliott and Hunsley (2014) found that income was related to the number of times in a given year one accessed mental health services in Canada and that the strongest predictor of receiving any mental health service from any health care service provider for any mental disorder was out-of-pocket spending on services. When examining the association between education and accessing mental health services, several studies have found a positive association (Starkes et al., 2005; Vasiliadis et al., 2009), with others finding no significant association with accessibility (e.g., Steele et al., 2007). Elliott and Hunsley (2014) found that, for individuals with any mental disorder, education was positively associated with the number of visits to any mental health service provider for psychotherapy and to the number of services received from any mental health service provider.

Although it appears that, in many circumstances, SES plays a role in determining who is able to access services, it is not clear whether it influences the experience of having an unmet need with respect to mental health or substance dependence treatment and/or whether it is related to the barriers that cause a mental health need not to be met. In the Canadian population, Vasiliadis et al. (2009) examined the barriers of accessibility, acceptability, and availability with the full CCHS 1.2 sample of participants aged 18 and older (N = 35,236). The authors found that self-reported income was not associated with barriers of accessibility or acceptability of services. However, they noted that income and education were significantly associated with receiving psychotherapy from a psychologist. Steele et al. (2007) specifically examined whether SES predicted the reporting of perceived barriers to mental health service in Canada. Restricting the CCHS data set to respondents who endorsed experiencing any anxiety disorder and/or affective disorder (n = 3,101), Steele et al. found that many of those surveyed reported mental health service barriers due to acceptability, with barriers of availability being the next most frequently endorsed, and barriers due to accessibility being endorsed by the fewest number of participants. Neither education nor income level was predictive of accessibility barriers; however, people without a high school diploma were more likely than those with at least a high school diploma to endorse barriers of acceptability of mental health services. Additionally, being younger, being employed, being a parent with a partner, and having higher distress were also significant predictors of endorsing barriers due to acceptability. From this pattern of findings, the authors concluded that education influences acceptability of mental health treatment, particularly amongst the employed, for depression and anxiety disorders.

As indicated in many of the studies described above, it is common for researchers to examine barriers related to accessibility, acceptability, and availability, and the CCHS 1.2

database includes summary scores for each of these three forms of barriers. However, no psychometric evidence supporting the use of these scores is provided in the CCHS 1.2. Indeed, Elliott and Hunsley (in press) recently reported that these measures of accessibility, acceptability, and availability were neither reliable nor valid. They argued, therefore, that these measures should not be utilized when analyzing the CCHS 1.2 data set and that, instead, each of the barriers contributing to these three summary scores should be examined independently. As all previous research on barriers with the CCHS 1.2 database has relied on the three summary scores, it is critical that these findings be re-considered and that research examine the impact of each of the 12 independent barriers measured in the CCHS 1.2.

The present study, therefore, will add to the literature by examining the barriers to unmet need in light of the separate barriers endorsed for each unmet need, rather than using the three derived variables of accessibility, acceptability, and availability. Although research has shown a tendency for education to be a better predictor of accessing services than income (e.g., Bijl & Ravelli, 2013; Donisi et al., 2013; Starkes et al., 2005), some studies have found that income is predictive of encountering barriers to receiving treatment (e.g., Sareen et al., 2007; Wong et al., 2006). The primary goal of this study is to examine whether a SES/social determinant model as well as psychological distress (Elliott & Hunsley, 2014) predicts the likelihood of endorsing any unmet need regarding mental health care in the CCHS 1.2 data set. Overall, given the strong association between level of education and receiving services (e.g., Elliott & Hunsley, 2014; Vasiliadis, et al., 2007), I predicted that there would be an inverse relation between education and endorsing any unmet need. Regarding income, although there is some inconsistency as to whether income plays a role in receiving mental health service (e.g., Alegrial et al., 2000; Elliott & Hunsley, 2014), I predicted that there would be an inverse relation between income and

endorsing any unmet need. As part of testing this model, I also examined whether SES moderates the effects of the other social determinants and psychological distress in predicting encountering barriers to mental health or substance related services. It may be, for example, that level of income amongst people of different demographic backgrounds influences the type of barriers encountered. Examining moderation effects may allow us to better predict who will access services and who will encounter barriers.

A second goal of this study is to examine whether the SES/social determinants model predicts endorsing the specific barriers associated with having any unmet need. Overall, I predicted that there would be an inverse relation between both income and education with respect to endorsing any of the barriers associated with unmet needs reported by respondents in the CCHS 1.2 survey.

Methods

Participants and Procedure

The Canadian Community Health Survey (CCHS), Mental Health and Well Being, cycle 1.2 is a cross-sectional survey that targeted people aged 15 and older living in the ten Canadian provinces. It excluded people living in the three territories, on Indian Reserves or Crown lands, residents of institutions, full-time members of the Canadian Armed forces, and people living in some remote areas. Of the age group targeted, this survey covered 98% of the population living within the ten Canadian provinces. A survey weight was given to the data collected from each person included in the final sample, with the weight corresponding to the number of persons represented by the respondent for the entire population.

The survey obtained a sample of 36,984 respondents in order to achieve reliable, provincial level estimates. In order to account for population differences across provinces,

sampling occurred proportionally to the square root of the estimated population in each province. Provinces were divided into major urban centres, cities, and rural regions. Within each major urban centre, geographic and socio-economic strata were created, within which between 150 and 250 dwellings were regrouped to create clusters. Within each stratum, six clusters or residential buildings were chosen by a random sampling method with a probability proportional to size, in which the size corresponds to the number of households. Smaller cities and rural regions were first stratified based on geography, then according to socio-economic characteristics. In the majority of strata, six clusters were selected using the probability proportional to size method. Where there was low population density, a three-step plan was used where 2 or 3 primary sampling units (normally corresponding to groups of census enumeration areas) were selected and divided into clusters, six of which were sampled. The sample was obtained using a systematic sampling of dwellings.

The current study uses data from CCHS respondents of all ages who reported any unmet need in the past 12 months (n = 1,784) regarding help for their emotions, mental health, or use of alcohol or drugs. Logistic regression will be used to examine whether socioeconomic status (SES) or other social determinants and psychological distress predict the presence of each type of unmet need. Additionally, an examination of the barriers reported for these unmet needs will be examined, and whether SES or the other social determinants as well as psychological distress increases the likelihood of reporting such a barrier. In the calculation of all estimates and tests of significance based on this sample, population weights will be used and a bootstrapping technique will be applied using the Statistics and Data (STATA 13) software, as recommended by Statistics Canada to adjust for unequal probability of selection for the study (Statistics Canada, 2002a).

Measures

Unmet Need. The CCHS asked respondents whether there was ever a time in the last 12 months when they felt that they needed help for their emotions, mental health, or use of alcohol or drugs, but did not receive it. If so, they were asked to identify the type of help that they felt they needed and asked to identify one or more of eight possible options (all answered in yes/no format) including: (1) information about mental illness and its treatments, (2) information on availability of services, (3) medication, (4) psychotherapy/counselling, (5) help with financial problems, (6) help with housing problems, (7) help with personal relationship problems, and (8) help with employment status.

Barriers. The CCHS asked respondents who identified any unmet need to identify any of twelve possible barriers (all answered in a yes/no format) that prevented the help from being received including: (1) preferred to manage yourself, (2) didn't think anything more could help, (3) didn't know how or where to get help, (4) afraid to ask for help or of what others would think, (5) couldn't afford to pay, (6) problems with things like transportation, childcare or scheduling, (7) professional help not available - in the area, (8) professional help not available - at time required (e.g., doctor on holidays, inconvenient hours), (9) waiting time too long, (10) didn't get around to it/didn't bother, (11) language problems, and (12) personal or family responsibilities.

Socioeconomic Status. SES was defined as including both education and income, and each was treated as continuous variables. Education data were available from the derived variable specifications of Statistics Canada, with respondents indicating the highest level of education they had completed (Statistics Canada, 2002b). There were ten response options: (1) grade 8 or lower, (2) grade 9-10, (3) grade 11-13, (4) secondary school graduate, no post-secondary education, (5) some post-secondary education, (6) trade certificate/diploma from vocational school or apprenticeship, (7) non-university certificate or diploma from community

college, (8) university certificate below bachelor's level, (9) bachelor's degree, and (10) university degree or certificate above bachelor's degree. Income data also came from Statistics Canada's derived variable specification, with income defined as total household income, with all income sources included.

Social determinants. The following social determinant variables were included in the model tested in this study: Gender (male/female), age (measured continuously from 15 years of age), ethnicity (defined as "White" versus "non-White"), rural/urban location.

Psychological distress. Psychological distress was measured with the Kessler Distress Scale -10, a 10-item Likert-type scale designed for screening population trends for general psychological distress (Kessler, et al., 2002). The scale has demonstrated consistent psychometric properties across major sociodemographic subsamples and has been shown to yield reliable scores in a variety of contexts and cultures, including primary care in New Mexico (Cronbach's alpha = .90; Terrez, Salcedo, Estrada, Romero, & Sotres, 2011) and primary care in the Netherlands (utilizing the Dutch version of the scale, Cronbach's alpha = .90; Donker et al., 2010). In the CCHS 1.2 sample the scale also produced reliable scores (Cronbach's alpha = .87). Additionally, the scale appears to be valid as a measure of non-specific psychological distress in non-clinical populations and, in clinical samples, it appears to measure specific psychological distress related to anxiety and depression (Sunderland, Mahoney, & Andrews, 2012).

Results

Predicting Unmet Need

In addition to our analyses predicting any unmet need, we initially expected to be able to conduct analyses for a subsample of participants who reported unmet need specifically regarding information about (a) mental illness and its treatments, (b) information on availability of

services, (c) medication, or (d) therapy/counselling. Due to very limited statistical power and the extremely non-normal distribution of data that resulted when we considered data from respondents who only indicated one of these unmet needs, it was not possible to examine whether the SES/social determinants model predicted the reporting of each unmet need individually. Therefore, we conducted analyses that examined data when any unmet need was endorsed by respondents.

Accordingly, a hierarchical logistic regression was performed utilizing the SES/social determinants model to predict the endorsement of experiencing any unmet need in the last 12 months for emotions, mental health or use of alcohol or drugs from one or more of the following: (1) information about mental illness and its treatments, (2) information on availability of services, (3) medication, (4) psychotherapy/counselling, (5) help with financial problems, (6) help with housing problems, (7) help with personal relationship problems, and (8) help with employment status (N = 33,159), representing 22,332,625 people in the Canadian general population. For all analyses, the model included urban/rural location, ethnicity, gender, age, distress, income, and education in the first block, followed by interaction terms between income and education for each of gender, age, distress and each other. Continuous variables were centred to allow for interactions to be investigated. All analyses were performed using STATA 13.

Table 1 displays the standard error (*SE*), odds ratios (*OR*), p values, and 95% confidence intervals (*CI*) for the analysis of unmet needs. The main effects of all variables in the SES social determinants model were significant as a whole, $F(7, 493) = 161.36$, $p < .001$. Within these main effects, a number of social determinant variables and psychological distress had statistically significant effects. With respect to ethnicity, respondents who were White were 64% more likely than non-White respondents to have reported having experienced an unmet need in the last 12

months, *OR* = 1.64, *p* = .004. Women were 41% more likely than men to have endorsed an unmet need, *OR* = 1.41, *p* < .001. Regarding age, for each unit increase in year of age, people were 3% less likely to have endorsed experiencing an unmet need in the past 12 months, *OR* = .97, *p* < .001. Distress was also a significant predictor, such that for each unit increase in psychological distress, people were 17% more likely to have reported an unmet need, *OR* = 1.17, *p* < .001. Finally, education was a significant predictor of unmet need, such that for each unit increase in level of education, people were 5% more likely to have reported experiencing any unmet need for their emotions, mental health or use of alcohol or drugs, *OR* = 1.05, *p* = .001. Adding interaction terms did not produce significant change in the overall predictive ability of the model.

Barriers Associated with Unmet Need

The following analyses used the full sample (*N* = 1,798); due to missing data, data from 165 cases were removed, leading to a final sample of (*N* = 1,633, representing 1,005,028 people in the Canadian general population). A hierarchical logistic regression analysis was performed to predict the endorsement of not receiving any form of help in the last 12 months for emotions, mental health, or use of alcohol or drugs due to each of 11 barriers. Results for each barrier are reported in Table 2 displaying the standard error (*SE*), odds ratios (*OR*), *p* values, and 95% confidence intervals (*CI*) for the model predicting each barrier. Although there is some variability in the pattern of social determinant variables and psychological distress that predicted the experience of each barrier, in no instance did the interaction terms in the regression analyses yield a significant increase in the predictive ability of the social determinant model. Finally, although several analyses were run, familywise error was not controlled for due to concerns regarding the resulting inflation of type II error (Perneger, 1998). Given that the analyses are

examining barriers to mental health services, type II error (i.e., failure to reject a false null hypothesis) was considered more important than type I error (i.e., incorrect rejection of a true null hypothesis) as failure to find a barrier that actually exists to receiving needed mental health or substance related treatment would be more harmful to the population than recommending a barrier to care be removed, which may not actually be an impediment to mental health services.

Preferred to manage the problem yourself. The main effects of all variables in the SES/social determinants model were significant as a whole, $F(7, 493) = 4.75$, $p < .001$. Within these main effects, several social determinants and psychological distress had statistically significant effects. Age was a significant predictor where, for every year increase in age, people were 1% less likely to report preferring to manage the problem themselves, $OR = .99$, $p = .02$. Income was also predictive of endorsing this barrier such that, for each unit increase in income, people were 10% more likely to endorse preferring to manage the problem themselves, $OR = 1.10$, $p = .003$. Finally level of distress also predicted the endorsement of this barrier such that, for each unit of increase in overall distress level, people were 4% less likely to endorse preferring to manage the problem themselves, $OR = .96$, $p < .001$.

Waiting time too long. The main effects of all variables in the SES/social determinants model were significant as a whole, $F(7, 493) = 4.18$, $p < .001$. Within the main effects both SES variables and psychological distress had statistically significant effects. Education was a significant predictor such that, for every unit increase in education, people were 10% more likely to endorse the waiting time being too long, $OR = 1.10$, $p = .04$. Additionally, income was a significant predictor such that, for every unit increase in income, people were 10% less likely to report the waiting time being too long, $OR = .90$, $p = .04$. Finally, psychological distress was also

a significant predictor such that, with every unit increase in overall distress, people were 4% more likely to report the waiting time being too long.

Personal or family responsibilities. The main effects of all variables in the SES/social determinants model were significant as a whole, $F(7, 493) = 2.69$, $p = .01$. Within the main effects, several social determinant variables had statistically significant effects. Women were more than twice as likely as men to report having personal or family responsibilities interfering with their ability to seek help, $OR = 2.19$, $p = .03$. Age was also a significant predictor such that, for each year increase in age, people were 3% less likely to endorse barriers due to personal or family responsibilities, $OR = .97$, $p = .01$. Finally, education was a significant predictor such that, for every unit increase in level of education, people were 13% more likely to report personal or family responsibilities interfering with their ability to seek help, $OR = 1.13$, $p = .04$.

Professional help not available in the area. The main effects of all variables in the SES/ social determinants model were significant as a whole, $F(7, 493) = 4.10$, $p < .001$. Within the main effects, one of the social determinants and psychological distress had statistically significant effects. Age was a significant predictor such that, for every year increase in age, people were 2% more likely to report not having help available in the area, $OR = 1.02$, $p = .03$. Distress was an additional predictor such that, for every unit increase in psychological distress, people were 5% more likely to report help not being available in the area, $OR = 1.05$, $p = .001$.

Professional help not available at the time required. The main effects of all variables in the SES/social determinants model were significant as a whole, $F(7, 493) = 2.92$, $p = .005$. Within the main effects, one of the SES variables and psychological distress had statistically significant effects. Education was a significant predictor such that, for every unit increase in education, people were 9% more likely to report help not being available at the time required,

OR = 1.09, *p* = .04. Additionally, level of psychological distress was also a significant predictor such that, for every unit increase in level of distress, people were 4% more likely to endorse help not being available at the time required, *OR* = 1.04, *p* = . 01.

Afraid to ask for help or of what others would think. The main effects of all variables in the SES social determinants model were significant as a whole, *F*(7, 493) = 2.40, *p* = .02. Within these main effects two of the social determinants had statistically significant effects. Age was a significant predictor of this barrier such that, for each year increase in age, people were 2% less likely to report being afraid to ask for help or of what others would think, *OR* = .98, *p* = .02. Additionally urban/rural location was also a significant predictor, such that people living in urban locations were almost half as likely to report being afraid to ask for help or of what others would think as compared with those living in rural locations, *OR* = .54, *p* = . 03.

Didn't get around to it/didn't bother. The main effects of all variables in the SES/social determinants model were significant as a whole, *F*(7, 493) = 2.32, *p* = .02. Within the main effects, one SES variable and one additional social determinant variable had statistically significant effects. Gender was significant such that women were 37% less likely than men to report not getting around to or bothering to seek help, *OR* = .63, *p* = .01. Income was also a significant predictor, such that, for every unit increase in income, people were 9% more likely to report not getting around to or bothering to seek help, *OR* = 1.09, *p* = .02.

Didn't know how or where to get help. The main effects of all variables in the SES/social determinants model were significant as a whole, *F*(7, 493) = 2.23, *p* = .03. Within these main effects, only income was a statistically significant predictor of endorsing this barrier such that with each unit increase in income people were 8% less likely to not know how or where

to get help for any unmet need related to emotions, mental health or use of alcohol or drugs in the last 12 months, *OR* = .92, *p* = .02.

Didn't think anything more could help. The model as a whole, as well as each step, was nonsignificant, thus the SES/social determinants model did not accurately distinguish those who endorsed this barrier from those who did not.

Couldn't afford to pay. The model as a whole, as well as each step was nonsignificant, thus the SES/social determinants model did not accurately distinguish those who endorsed this barrier from those who did not.

Problems with things like transportation, childcare or scheduling. The model as a whole, as well as each step was nonsignificant, thus the SES/social determinants model did not accurately distinguish those who endorsed this barrier from those who did not.

Discussion

The first goal of this study was to examine whether SES and social determinants predicted the experience of any unmet need in the past 12 months when respondents felt that they needed help for their emotions, mental health, or use of alcohol or drugs, but did not receive it. The SES/social determinants model did predict this; specifically, education, but not income, was a significant predictor such that people with higher education were more likely to report experiencing any type of unmet need. This is an important finding given that education has often been found to be a significant predictor of accessing mental health services worldwide (e.g., Bijl & Ravelli, 2000, Parslow & Form, 2000). It may be that people with higher education levels are either more aware that their experiences are related to a difficulty associated with mental health and/or have the ability to find the needed information to recognize that they need professional help. Consistent with information processing-based models of help seeking (e.g., Vogel, Wester,

Larson, & Wade, 2006), such mental health literacy may allow people to more confidently report that there was a time when they needed help in the past that they did not receive.

With respect to social determinants, people self-identifying as being White were more likely than people identifying themselves as non-White to report any unmet need in the last 12 months. The direction of this result is, at first glance, inconsistent with the usual pattern of findings that suggest people who are members of ethnic minorities are more likely to encounter barriers to mental health services (e.g., Giacco, Matanov, & Priebe, 2014). However, in the CCHS 1.2 sample it may well be that those who are already utilizing mental health services are more likely to report an unmet need regarding these services (cf. Wang, 2006). Other social determinants as well as psychological distress were also significant predictors of unmet need: women were more likely than men to report an unmet need and distress level was positively associated with reporting an unmet need. Vasiliadis et al. (2009) found that women were more likely than men to receive mental health services and, in line with Wang's (2006) conclusions, those who are utilizing mental health services are the most likely to report experiencing unmet need regarding treatment. With respect to distress levels, this latter finding is particularly troubling as, with each unit increase in distress, people were 17% more likely to report having experienced an unmet need. Although distress is one of the most robust predictors of accessing mental health care (e.g., Mills, Van Hooff, Bauer, & McFarlane, 2012), these results suggest that (a) as it increases it may actually become a barrier to receiving mental health treatment and (b) those most in need may be those not receiving necessary services. Although age was a significant predictor of unmet need, it was inversely related to experiencing unmet need such that for each year increase in age, people were 3% less likely to report experiencing an unmet need. This could reflect the diminished use of mental health services in adults over 65 years of age (e.g.,

Crabb & Hunsley, 2006; Mosier et al., 2010), or it may reflect the fact that younger individuals are encountering more barriers to mental health care than are older adults.

The second goal of this study was to examine individual barrier items to unmet needs in mental health and substance related treatments. The SES/social determinants model significantly predicted 8 of the 11 barriers (barriers due to language difficulties were not examined, as too few respondents indicated this as a barrier). Additionally, the SES/social determinants as well as psychological distress that were predictive of each barrier were slightly different, further confirming the results of a previous study that these barriers are distinct from each other and need to be examined independently (Elliott & Hunsley, in press). None of the interaction terms were significant in any of the models, indicating that only a direct relation exists between social determinant variables, psychological distress and the experience of these barriers. Most importantly, contrary to results reported by Steele et al. (2007) in their examination of categories of barriers (i.e., acceptability, accessibility, availability), our study found that income and education predicted the experiencing of several barriers. In other words, in this Canadian sample SES did play a significant role in encountering barriers to receiving help (including psychotherapy and medication treatment) for problems related to emotions, mental health, or use of alcohol or drugs. This is especially disconcerting given the fact that low income is one of the strongest predictors of experiencing a mental disorder (e.g., Giordiano & Lindstrom, 2011; Starkes et al., 2005).

The Role of SES in Predicting Barriers

Consistent with previous research on the impact of SES on health (Braveman et al., 2005; Shavers, 2007), education and income had different effects on encountering barriers to mental health or substance related services. Income was predictive of four of the eleven barriers

examined. Specifically, for every unit increase people were 10% more likely to endorse preferring to manage the problem themselves and 9% more likely to report not getting around to or bothering to seek out mental health treatment. It may be that those with higher incomes work more hours and are too busy (or believe that they are) to seek services, particularly if the service requires a large time commitment (e.g., psychotherapy). Additionally, it is known that people of higher SES, particularly with respect to substance abuse treatment, may prefer more anonymous forms of intervention such as web-based self-help groups (e.g., Schaub, Sullivan, Haug, & Stark, 2012) and, in the absence of such anonymity, or awareness of programs, may prefer to manage the problem themselves. Income also appears to play a role in reducing the likelihood of encountering some barriers. For every unit increase in income, respondents were 8% less likely to report that they did not know where to find services. It may be that those with higher incomes have access through employment benefits to various services or that they are more readily able to seek private services. Additionally, for every unit increase in income, people were 10% less likely to report that the waiting time for treatment was too long, suggesting that those with the means to pay for private services are likely to receive services more quickly. This is consistent with previous findings of out-pocket-spending being the strongest predictor of the number of services one will receive in a given year (Elliott & Hunsley, 2014).

In our analyses, as education increased, so did the experience of some barriers. Specifically, for every unit increase in education, people were 9% more likely to report that professional help was not available at the time required, 10% more likely to report that the waiting time was too long, and 13% more likely to report that personal or family responsibilities prevented respondents from seeking help. This may seem, at first glance, incongruent with the results based on income, given that education has repeatedly been a strong predictor of seeking

mental health services (e.g., Bijl & Ravelli, 2000; Donisi et al., 2013; Starkes et al., 2005). However, it may be that those with higher education have increased mental health literacy, or the ability to obtain information more easily. If this were the case, they may have been more aware of having a problem, which is an important first step in seeking services (cf. Elliott et al., 2014; Saunders, 1993). It may also be that they recognized that they needed help, an important second step in seeking services, which they were not able to access at the time required. It is only through actually attempting to seek help that one is able to recognize that it is not available and/or that the waiting time is too long.

The Role of Social Determinants and Psychological Distress in Predicting Barriers

Each of the social determinants and psychological distress played a role in predicting at least one barrier to receiving mental health treatment however, as in the case with SES, they played different roles depending on the type of barrier encountered. For example, rural/urban location was only predictive of encountering the barrier of being afraid to ask for help or being afraid of what others might think. In fact, people in urban locations were nearly half as likely as those in rural locations to avoid treatment due to fears of what others might think. It may be that anti-stigma campaigns need to target issues and concerns that are particularly prominent in rural locations.

Age appeared to play a strong role in several of the barriers. For example, for each year increase in age people were 1% more likely to report not receiving treatment because they preferred to manage the problem themselves. Although there has been a tendency to interpret this barrier as an indication of stigma (cf. Nelson & Park, 2006; Vasiliadis et al., 2009), it is noteworthy that for every year increase in age, people were also 2% less likely to avoid treatment due to fears of asking for help or of what other might think. Although as age increased, people

were less likely to report personal or family responsibilities interfering with receiving treatment, for each year increase in age people were also more likely to report that professional help was not available in their area when they required it.

Distress was important in predicting several of the barriers to receiving mental health treatment. Consistent with research findings that distress is a robust predictor of seeking mental health services (e.g., Mills et al., 2012), for every unit increase in distress people were 4% less likely to report preferring to manage the problem themselves. What is of great concern in the findings is that, as distress levels increased, people were more likely to report that (a) professional help was not available at the time or in the area in which they required it and (b) the waiting time for services was too long. This suggests that people in need of help may recognize this need as their levels of distress increase, however they may not receive services in as timely a manner as would be ideal.

Finally, gender had a surprisingly small impact on encountering barriers to services. This stands in contrast to its well-established impact on accessing mental health services (e.g., Bijl & Ravelli, 2000; Gudmundsdottir & Vilhjalmsson, 2010; Levinson & Ifrah, 2010; Parslow & Jorm, 2000; Vasiliadis et al., 2007). Gender played a role in predicting only two barriers. Women were more than twice as likely as men to report that personal or family responsibilities prevented them from receiving mental health treatment. Women were also 37% less likely than men, however, to report that they simply did not get around to, or bothered to, seek help. This is consistent with research indicating that women are more likely than men to consult a health professional for a mental health reason (e.g., Cox, 2014; Mackenzie, Gekoski, & Knox, 2006; Vasiliadis et al., 2009), although this gender difference appears to be diminishing, particularly with respect to services received from psychologists and psychiatrists (Cox, 2014).

Three barriers were not predicted by the model at all. Surprisingly this included the barrier of not being able to afford to pay and the barrier of encountering problems with things like transportation, childcare, and scheduling. It is important to note, however, that these barriers were only endorsed by 11.5% and 5.7% of the sample, respectively; as a result, our analyses may have been under- powered to detect any effects.

Limitations and Implications

Major limitations with this study include the fact that all data were self-reported and, as mentioned previously, we were unable to examine the barrier items with respect to specific types of unmet need (i.e., need for information versus types of treatment). The fact that all types of unmet need were grouped together limits our ability to interpret the findings and could potentially be obscuring effects that may be related to the types of barriers encountered that are associated with each unmet need (cf. Mohr et al., 2010). For example, it would be useful to be able to separate the unmet needs of "information on mental illness and its treatments" and "information on availability of services" from the types of treatments sought in order to further clarify whether education continues to play a predictive role in mental health and treatment literacy, in which case, more information provided to the public about mental illness itself, options for treatments and expectations, as well as information on how and where to seek services may be an important area for researchers, practitioners, and policy makers to focus on. Future national-level surveys should separate the types of unmet need that people endorse in order to allow researchers to further clarify these important issues.

Despite these limitations we found that, contrary to the findings of several previous studies examining the grouped variables of barriers due to accessibility, acceptability and availability (e.g., Steele et al., 2007; Vasiliadis et al., 2009), SES does in fact have an important

role in predicting many types of barriers to mental health services. Specifically, contrary to many findings in the accessibility literature that education, as opposed to income, plays the main role in accessing services (e.g., Starkes et al., 2005; Vasiliadis et al., 2009), we found an important role for income as well. Although education may be related to mental health literacy (i.e., the ability to recognize one may have a problem and not be able to access the required services), income also appears to be playing an equally important role in that it is related to actually gaining access to available services in a timely manner. Furthermore, this finding, with respect to income, is consistent with and further supported by our previous findings that out-of-pocket spending was the greatest predictor of the number of services one would receive for mental health treatment in a given year in Canada (Elliott & Hunsley, 2014). If we combine these two findings, it may be the level of extra income available for spending that is going to predict whether one receives mental health treatment. This suggests that Canada's universal health care system is not working as well as it should with respect to mental health care. Policy makers and researchers alike need to focus on system improvements that ensure equal access to services. Initiatives to expand access to psychotherapeutic services in the United Kingdom and Australia may provide options that could be considered in Canada (e.g., Peachey, Hicks, & Adams, 2013).

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Table 1

Hierarchical Logistic Regression of SES/Social Determinants for Any Unmet Need for Emotions, Mental Health ,or Use of Alcohol or Drugs (n = 33,159)

Step and predictor variable	*SE*	*OR*	*p*	95% CI
Step 1:			<.001	
Rural/Urban	.14	1.12	.37	[.87, 1.44]
Ethnicity	.28	1.64	<.001	[1.17, 2.29]
Gender	.12	1.41	<.001	[1.19, 1.66]
Age (centered)	.00	.97	<.001	[.97, .98]
Distress (centered)	.01	1.17	<.001	[1.16, 1.18]
Education (centered)	.02	1.05	.001	[1.02, 1.08]
Income (centered)	.02	1.00	.91	[.96, 1.04]
Step 2:			.12	
Education x Income	.01	1.00	.50	[.99, 1.02]
Education x Age	.00	1.00	.06	[.99, 1.00]
Income x Age	.00	1.00	.66	[.99, 1.00]
Education x Gender	.03	1.05	.11	[.99, 1.13]
Income x Gender	.04	1.00	.95	[.94, 1.07]
Education x Distress	.00	1.00	.99	[.99, 1.00]
Income x Distress	.00	1.00	.03	[1.00, 1.00]

Note. CI= confidence interval for odds ratio (*OR*).

Table 2

Hierarchical Logistic Regression of SES/Social Determinants for Barrier Items (n = 1,633)

Step and predictor variable	*SE*	*OR*	*p*	95% CI
Preferred to manage the problem yourself				
Step 1:			<.001	
Rural/Urban	.23	.96	.88	[.60, 1.55]
Ethnicity	.36	1.17	.61	[.64, 2.14]
Gender	.17	.98	.85	[.69, 1.36]
Age (centered)	.01	.99	.02	[.98, 1.00]
Distress (centered)	.01	.96	<.001	[.94, .98]
Education (centered)	.03	.97	.44	[.91, 1.04]
Income (centered)	.04	1.10	.003	[1.03, 1.18]
Step 2:			.15	
Education x Income	.01	.97	.04	[.95, 1.00]
Education x Age	.00	1.00	.36	[1.00, 1.01]
Income x Age	.00	1.00	.41	[.99, 1.00]
Education x Gender	.07	.95	.47	[.83, 1.09]
Income x Gender	.07	1.07	.33	[.94, 1.21]
Education x Distress	.00	1.00	.77	[.99, 1.01]
Income x Distress	.00	1.00	.33	[.99, 1.00]
Waiting time too long				
Step 1:			<.001	
Rural/Urban	.63	1.73	.13	[.85, 3.54]
Ethnicity	.75	1.43	.49	[.51, 4.00]
Gender	.50	1.71	.07	[.96, 3.03]
Age (centered)	.01	1.00	.69	[1.00, 1.20]
Distress (centered)	.02	1.04	.02	[1.01, 1.08]
Education (centered)	.05	1.10	.04	[1.00, 1.20]
Income (centered)	.04	.90	.04	[.82, .99]
Step 2:			.15	
Education x Income	.02	1.00	.79	[.96, 1.03]
Education x Age	.00	1.00	.27	[1.00, 1.01]
Income x Age	.00	1.01	.09	[1.00, 1.01]
Education x Gender	.10	.99	.96	[.81, 1.22]
Income x Gender	.10	.92	.74	[.74, 1.13]
Education x Distress	.01	1.00	.87	[.99, 1.01]
Income x Distress	.01	1.01	.04	[1.00, 1.03]

Personal or family responsibilities				
Step 1:			.01	
Rural/Urban	.50	.94	.90	[.33, 2.68]
Ethnicity	.45	.83	.74	[.28, 2.42]
Gender	.80	2.19	.03	[1.07, 4.49]
Age (centered)	.01	.97	.01	[.96, .99]
Distress (centered)	.02	.99	.61	[.95, 1.03]
Education (centered)	.06	1.13	.04	[1.01, 1.26]
Income (centered)	.06	.94	.40	[.83, 1.08]
Step 2:			.22	
Education x Income	.02	.99	.52	[.95, 1.03]
Education x Age	.00	1.00	.47	[1.00, 1.01]
Income x Age	.00	1.01	.16	[1.00, 1.01]
Education x Gender	.14	1.03	.84	[.79, 1.34]
Income x Gender	.14	1.00	.53	[.84, 1.41]
Education x Distress	.01	.99	.07	[.97, 1.00]
Income x Distress	.01	.99	.52	[.98, 1.01]
Professional help not available in the area				
Step 1:			<.001	
Rural/Urban	.27	.83	.57	[.43, 1.58]
Ethnicity	1.25	2.55	.06	[.97, 6.70]
Gender	.44	1.50	.17	[.84, 2.67]
Age (centered)	.01	1.02	.03	[1.00, 1.04]
Distress (centered)	.02	1.05	.001	[1.02, 1.09]
Education (centered)	.06	1.07	.19	[.97, 1.18]
Income (centered)	.05	.97	.51	[.87, 1.07]
Step 2:			.38	
Education x Income	.02	1.00	.84	[.96, 1.03]
Education x Age	.00	.99	.12	[.99, 1.00]
Income x Age	.00	1.00	.50	[.99, 1.01]
Education x Gender	.12	.93	.56	[.72, 1.20]
Income x Gender	.15	1.27	.04	[1.01, 1.59]
Education x Distress	.01	.99	.41	[.98, 1.01]
Income x Distress	.01	1.00	.59	[.99, 1.01]
Professional help not available at the time required				
Step 1:			.01	
Rural/Urban	.32	.51	.29	[.15, 1.77]

Ethnicity	.36	.42	.32	[.08, 2.28]
Gender	.22	.75	.33	[.43, 1.33]
Age (centered)	.01	1.02	.05	[1.00, 1.04]
Distress (centered)	.02	1.04	.01	[1.01, 1.07]
Education (centered)	.05	1.09	.04	[1.00, 1.18]
Income (centered)	.06	.95	.45	[.84, 1.08]
Step 2:			.13	
Education x Income	.02	1.01	.70	[.97, 1.05]
Education x Age	.00	1.00	.84	[.99, 1.00]
Income x Age	.00	1.01	.03	[1.00, 1.02]
Education x Gender	.09	.93	.45	[.77, 1.12]
Income x Gender	.10	.86	.20	[.68, 1.08]
Education x Distress	.01	.99	.20	[.98, 1.00]
Income x Distress	.01	1.00	.79	[.99, 1.01]
Afraid to ask for help or of what others would think				
Step 1:			.02	
Rural/Urban	.15	.54	.03	[.31, .93]
Ethnicity	.37	1.07	.85	[.54, 2.11]
Gender	.21	1.08	.69	[.74, 1.58]
Age (centered)	.02	.98	.02	[.97, 1.00]
Distress (centered)	.01	1.01	.58	[.98, 1.03]
Education (centered)	.04	.97	.53	[.89, 1.06]
Income (centered)	.04	.95	.88	[.88, 1.03]
Step 2:			.11	
Education x Income	.02	.97	.08	[.94, 1.00]
Education x Age	.00	1.00	.13	[.99, 1.00]
Income x Age	.00	1.00	.59	[.99, 1.00]
Education x Gender	.09	1.03	.74	[.86, 1.23]
Income x Gender	.08	1.12	.11	[.98, 1.28]
Education x Distress	.00	1.00	.47	[.99, 1.01]
Income x Distress	.00	.99	.06	[.98, 1.00]
Didn't get around to it/didn't bother				
Step 1:			.02	
Rural/Urban	.31	1.15	.62	[.67, 1.96]
Ethnicity	.51	1.52	.20	[.79, 2.92]
Gender	.11	.63	.01	[..44, .90]
Age (centered)	.01	.99	.27	[.98, 1.01]
Distress (centered)	.01	1.01	.38	[.99, 1.03]
Education (centered)	.04	.99	.77	[.92, 1.07]

Income (centered)	.04	1.09	.02	[1.01, 1.18]
Step 2:			.22	
Education x Income	.01	1.01	.57	[.98, 1.04]
Education x Age	.00	1.00	.18	[.99, 1.00]
Income x Age	.00	1.00	.54	[1.00, 1.01]
Education x Gender	.08	1.04	.61	[.90, 1.21]
Income x Gender	.07	.94	.38	[.81, 1.09]
Education x Distress	.01	.99	.08	[.98, 1.00]
Income x Distress	.00	1.01	.01	[1.00, 1.02]
Didn't know how or where to get help				
Step 1:			.03	
Rural/Urban	.39	1.53	.10	[.92, 2.54]
Ethnicity	.22	.73	.29	[.41, 1.31]
Gender	.18	1.00	.98	[.70, 1.42]
Age (centered)	.01	1.01	.15	[1.00, 1.02]
Distress (centered)	.01	.99	.54	[.97, 1.02]
Education (centered)	.03	.98	.55	[.91, 1.05]
Income (centered)	.03	.92	.02	[.86, .99]
Step 2:			.51	
Education x Income	.01	1.00	.83	[.97, 1.02]
Education x Age	.00	1.00	.44	[1.00, 1.01]
Income x Age	.00	1.00	.83	[.99, 1.00]
Education x Gender	.08	1.01	.87	[.87, 1.18]
Income x Gender	.07	1.04	.59	[.91, 1.19]
Education x Distress	.01	.99	.18	[.99, 1.00]
Income x Distress	.00	.99	.17	[.98, 1.00]
Didn't think anything more could help				
Step 1:			.09	
Rural/Urban	.42	1.28	.44	[.68, 2.43]
Ethnicity	.25	.70	.31	[.35, 1.41]
Gender	.33	1.46	.09	[.94, 2.28]
Age (centered)	.01	1.00	.63	[.98, 1.01]
Distress (centered)	.01	1.02	.08	[1.00, 1.05]
Education (centered)	.05	.98	.48	[.88, 1.06]
Income (centered)	.04	.96	.29	[.88, 1.03]
Step 2:			.26	
Education x Income	.02	.99	.60	[.96, 1.02]
Education x Age	.00	1.01	.03	[1.00, 1.01]
Income x Age	.00	1.00	.79	[.99, 1.01]

Education x Gender	.08	.86	.09	[.72, 1.02]
Income x Gender	.09	1.09	.28	[.93, 1.28]
Education x Distress	.01	1.00	.73	[.99 1.01]
Income x Distress	.01	.99	.34	[.98, 1.01]
Couldn't afford to pay				
Step 1:			.07	
Rural/Urban	.24	.91	.73	[.55, 1.52]
Ethnicity	.27	.82	.54	[.43, 1.55]
Gender	.25	1.18	.43	[.78, 1.80]
Age (centered)	.01	.99	.34	[.98, 1.01]
Distress (centered)	.01	1.01	.51	[.98, 1.03]
Education (centered)	.04	1.03	.53	[.95, 1.11]
Income (centered)	.03	.91	.01	[.85, .97]
Step 2:			.08	
Education x Income	.01	.98	.19	[.95, 1.01]
Education x Age	.00	.99	.01	[.99, 1.00]
Income x Age	.00	1.00	.19	[.99, 1.00]
Education x Gender	.09	1.12	.15	[.96, 1.30]
Income x Gender	.07	.95	.49	[.82, 1.10]
Education x Distress	.01	1.00	.73	[.99, 1.01]
Income x Distress	.00	1.00	.44	[.99, 1.01]
Problems with things like transportation, childcare or scheduling				
Step 1:			.15	
Rural/Urban	.32	.74	.49	[.31, 1.75]
Ethnicity	.53	.87	.82	[.27, 2.87]
Gender	.82	2.09	.06	[.97, 4.50]
Age (centered)	.01	.99	.21	[.97, 1.01]
Distress (centered)	.02	1.01	.51	[.98, 1.04]
Education (centered)	.08	.99	.95	[.85, 1.16]
Income (centered)	.06	.94	.31	[.84, 1.06]
Step 2:			.84	
Education x Income	.03	.97	.22	[.91, 1.02]
Education x Age	.00	1.00	.60	[.99, 1.01]
Income x Age	.00	1.00	.92	[.99, 1.01]
Education x Gender	.24	1.13	.57	[.75, 1.71]
Income x Gender	.13	1.03	.79	[.81, 1.31]
Education x Distress	.01	1.00	.78	[.98, 1.01]
Income x Distress	.01	.99	.16	[.98, 1.00]

Note. CI= confidence interval for odds ratio (*OR*).

Chapter 5

General Discussion

The purpose of this dissertation was to examine the state of accessibility and barriers to mental health services in Canada. It specifically was designed to examine what role SES in combination with other social determinants as well as psychological distress may play in either accessing or encountering barriers to services (for either mental health or substance related disorders), in light of the Canada Health Act and given the conflicting findings in the Canadian literature on this topic (e.g., Starkes, Poulin, & Kisley, 2005; Steele, Dewa, & Lee, 2007; Vasiliadis et al., 2009). This dissertation was designed to investigate these issues through three separate studies which examined: (1) whether SES, social determinants, psychological distress and/or out-of-pocket spending predict the number of visits to any mental health provider for any mental health disorder or substance dependence in a given year in the Canadian general population. A secondary goal of this study was to examine whether these social determinants and psychological distress predicted overall satisfaction with the services received, (2) the factor structure and reliability of the proposed three-factor derived measure of accessibility, acceptability and availability recommended by Statistics Canada, and (3) whether SES and other social determinants, as well as psychological distress, predict barriers to any unmet need with respect to help with emotions, mental health or use of alcohol or drugs in the past year in the Canadian general population. All three studies utilized data from the CCHS 1.2 Mental Health and Wellbeing data set as this was the most up-to-date survey examining mental health in the Canadian context at the time of the design of these studies.

The dissertation findings indicate: (a) an important role for SES and other social determinants, as well as psychological distress, in both accessing mental health services and

predicting overall satisfaction with services (Study 1), (b) serious measurement concerns with the three-factor model proposed by Statistics Canada to measure barriers to unmet need in mental health care (Study 2), and (c) an important role for SES/social determinants and psychological distress in predicting barriers to receiving mental health care in the Canadian general population (Study 3). In addition to discussing these findings in detail, in this section I will also present important limitations, implications, and suggestions for future research based on these findings.

Study 1

The role of SES and access to mental health services. The first goal of this study was to examine the potential role of SES (i.e., education and income) in determining the number of mental health services people with any mental disorder in the past 12 months received within the past year from any provider. The international literature has predominantly found education to be a predictor of seeking mental health services (e.g., Bijl & Ravelli, 2000; Donisi et al., 2013; Parslow & Jorm, 2000), although level of income has been found to be predictive of receiving some specialist mental health services in the United States (Alegria, Bijl, Lin, Walters, & Kessler, 2000). In Canada, however, results have been mixed, with some studies suggesting income to be the greater predictor of experiencing a mental disorder, but education being the greater predictor of receiving treatment (Starkes et al., 2005; Vasiliadis et al., 2009). Steele et al. (2007), however, found neither education nor income to be predictive of encountering barriers related to accessibility of mental health services. The results of the current study, however, demonstrated that both variables play an important role in the number of services one is likely to receive in a given year in Canada.

With respect to medication, the SES/social determinants model as a whole predicted the number of services received and accounted for 15% of the variance, though no one variable was

significant within the model. Regarding psychotherapy, income and education were the only two significant variables predicting the number of visits to any provider for psychotherapy/counselling in a given year. Out-of-pocket spending, however, was by far the strongest predictor of the *total* number of services (i.e., medication and/or psychotherapy) people received, accounting for 13% of the variance above and beyond the SES/social determinants model as a whole; with its addition to the model, nearly one-quarter of the variance for receiving services was explained. Although out-of-pocket spending is not necessarily equivalent to income or considered a measure of SES per se, SES and income will ultimately influence the amount of available money that one could choose to spend on services. Given that low income is a strong predictor for the presence of a mental disorder (e.g., Caron & Liu, 2010; Giordiano & Lindstrom, 2011; Starkes et al., 2005), people experiencing a diagnosable disorder will likely have less available income to spend out-of-pocket. This suggests SES and, in particular, income actually play a very important role in accessing mental health services in Canada.

The role of other social determinants, psychological distress and access to mental health services. As mentioned above, the SES/social determinants model, as a whole, predicted the number of services people received in a year for medication treatment and accounted for 15% of the overall variance, however, no one variable individually predicted receiving this form of treatment. Likewise, the model, as a whole, was statistically significant for predicting the number of services received for psychotherapy, though no single social determinant, apart from SES variables, was significant. It is noteworthy that the model did not predict receiving an overnight hospital visit in the last 12 months. It may be that social determinants do not impact hospitalization (a service guaranteed to be covered by Canada's government insurance under the Canada Health Act), however, it is also important to note that not all mental disorders were

included within the CCHS 1.2 survey (e.g., schizophrenia). Therefore, it is likely that the number of hospitalizations for mental health services are under-estimated within this data set and these results should be viewed with caution.

Although these results may appear to suggest that social determinants (other than SES) and psychological distress do not play a particularly important role in the number of services received for mental health or substance dependence treatment in Canada, the issue may have more to do with the number of mental health services received in a year than the predictive validity of the variables themselves. Most people with a mental health disorder in Canada did not receive any treatment. Of those who did, most only received a single consultation with a single provider within a 12 month time frame. This is fewer visits for mental health care than has been reported in epidemiological studies in the United States. Utilizing data from the National Comorbidity Survey Replication (NCS-R; n = 9,282), Wang (2005) found that people had received a median of 7.4 visits to mental health specialists and a median of 1.7 visits to health care providers in the general medical sector for mental health treatment in the past 12 months within which the survey data were collected. It may be, therefore, that there is simply not enough variability in the number of services people are receiving in Canada to detect robust statistical patterns predictive of service use. Before dismissing the importance of social determinants and psychological distress in affecting mental health care utilization, we must consider this important limitation. Given that such low rates of mental health service access are likely not sufficient to help those in need, any public efforts to increase the number of mental health services available to the public would greatly benefit those seeking help. Such an increase would also allow researchers to more thoroughly and accurately investigate the characteristics that predict service utilization and whether Canada's universal health care is, in fact, applicable to mental health care

for Canadians. Currently, based on the average number of consultations it does not appear to be meeting the needs of the average Canadian with a likely mental health disorder.

The role of SES/social determinants and psychological distress in satisfaction with mental health services. A secondary goal of the first study was to examine whether SES and other social determinants as well as psychological distress had an impact on overall satisfaction with services received. Income was positively associated with overall satisfaction with services such that people with higher incomes were more likely to report that, overall, they were satisfied with the treatment they received. Conversely, out-of-pocket spending was negatively associated with satisfaction with services, such that the more money spent out-of-pocket, the less satisfied people were, overall, with the treatment they received. Finally, distress levels were also negatively associated with overall satisfaction with services, such that the higher the level of distress experienced, the less satisfied respondents were with the services they received. This latter finding could stem from a lack of appropriate or adequate treatment, particularly for those most in need; however, it could also represent unmet expectations in treatment results. Often, particularly with more serious or chronic mental illness, full remission is not the goal of treatment, but management of symptoms is. It may be that those in higher distress or with more chronic illness (particularly those spending out-of-pocket for services) are expecting more from treatment than is possible to provide. This would be an important area of investigation, including examining whether clinicians are being forthright with their patients/clients about the potential benefits, likely limitations, and reasonable expectations of treatment. It would also be important to investigate the types of treatment received by clients/patients who were dissatisfied to determine whether appropriate, evidence-based treatment was provided.

Study 2: Measurement of Accessibility, Acceptability and Availability

The purpose of the second study in this dissertation was to examine the construct validity of the measures of acceptability, accessibility and availability within the CCHS 1.2 data set, as well as the reliability of the scores obtained by respondents who reported an unmet need for their emotions, mental health, or use of alcohol or drugs in the last 12 months. As the three-factor structure has been used in several studies examining barriers to mental health care in Canada (Nelson & Park, 2006; Steele, et al., 2007; Vasiliadis, et al., 2009; Wang, 2006) with the purpose of making policy recommendations, it was important to ensure that the resulting data were of the highest scientific quality. In order to determine this it was important to examine (a) the construct validity and (b) the reliability of the barrier measures of accessibility, acceptability and availability.

Construct validity of the three-factor model. As the purpose of this dissertation was to examine accessibility and barriers to mental health services for people likely meeting criteria for a mental disorder or substance dependence, the first attempt at examining this model involved restricting the sample to those meeting criteria for a mental disorder or substance dependence who reported experiencing barriers to receiving the following unmet needs: (1) information on mental illness and its treatments, (2) availability of services, (3) medication, and (4) psychotherapy/counselling. The confirmatory factor analysis (CFA) utilized to test this hypothesized model failed to converge, suggesting the variables do not group together (i.e., they are not effect indicators of these three proposed constructs; cf. Streiner, 2003). In order to maximize power, the CFA was run a second time including all participants (i.e., not just those who were meeting criteria for a mental disorder or substance dependence) who experienced any type of unmet need (i.e., not just those indicating one of the four previously mentioned unmet

needs regarding information on mental illness and access to treatment). The model failed to converge a second time, again suggesting the three factor model is not valid.

The next step taken was to conduct an exploratory factor analysis (EFA) in order to examine whether there was an alternate way to group the barrier items into scales that could measure unmet need in mental health care in Canada. Although there was some suggestion of a two-factor model of accessibility and availability, the majority of the barrier items did not load onto any factor, suggesting that these latent variables are not actually being measured by the data. Most importantly these findings strongly suggest that the acceptability scale, which has consistently been found to be the barrier most endorsed by respondents (Nelson & Park, 2006; Steele, et al., 2007; Vasiliadis, et al., 2009; Wang, 2006) is not a valid measure.

Internal consistency reliability. The next step was to examine the reliability of these measures by generating Cronbach's alpha values for each of the proposed scales by Statistics Canada, as well as for the possible two-factor scales generated by the exploratory factor analysis. The results all demonstrated very poor reliability. Most importantly, the acceptability scale obtained a reliability value that suggests there is no possible way the items could ever fit together to measure this construct.

General conclusions and implications. The major implication of results of this study is that the results of the studies that have used the three-factor accessibility, acceptability and availability model to measure barriers to mental health treatment in Canada are likely largely due to measurement and/or statistical error. As such, any policy implications stemming from these studies need to be taken with a rather large grain of salt. Furthermore, it suggests that the barrier items are likely not effect indicators of a scale, but rather causal indicators of an index (cf. Streiner, 2003). As such, they need to be treated independently, as each likely represents a

separate component of the overall construct of accessibility to mental health services. By treating these items independently, researchers will gain a more accurate understanding of what is preventing people from receiving the help they needed for their emotions, mental health, or use of alcohol or drugs. The results will also help to clarify where to best invest time and resources to help improve accessibility to mental health care in Canada. These findings led to the final study of this dissertation, which was to re-examine these barrier items independently to see whether SES and other social determinants, as well as psychological distress play a role in preventing people from receiving needed care.

Study 3

The role of socioeconomic status and barriers to mental health services. Contrary to several previous findings (e.g., Steele et al., 2007; Vasiliadis et al., 2009) socioeconomic status was a significant predictor of both unmet need and several of the barriers to unmet need in the Canadian general population. Specifically, education (but not income) was a significant predictor such that, the higher education rose, the more likely people were to report experiencing any unmet need with respect to emotions, mental health, or use of alcohol or drugs in the last 12 months. They were also more likely to report experiencing several barriers to these unmet needs. Specifically, for every unit increase in education, people were 9% more likely to report that professional help was not available at the time required, 10% more likely to report that the waiting time for services was too long, and 13% more likely to report that personal or family responsibilities prevented people from receiving treatment.

Income, on the other hand, played a very different role, in that it reduced the number of barriers people encountered. As mentioned above, it was not associated with experiencing an unmet need. Furthermore, for every unit increase in income level, people were 8% less likely to

report that they did not know where to find services and 10% less likely to report that the waiting time for treatment was too long. Not all results were positive, however, as higher income levels were also associated with people preferring to manage the problem themselves and more likely to report not getting around to or bothering to seek out treatment. Surprisingly, the barriers "couldn't afford to pay" and "problems with things like transportation, childcare or scheduling" were not predicted by income (or any social determinant).

Taken collectively, these results support the general SES literature that income and education play separate, yet equally important roles and further support the need to examine each of these variables independently from the other (cf. Braveman et al., 2005; Shavers, 2007). The results also suggest that education may be playing more of a role in recognition of a problem and the recognition that treatment may help, which are important first steps in the process of seeking therapy (Elliott, Westmacott, Hunsley, Rumstein-McKean, & Best, 2014; Saunders, 1993). It may be that higher education levels provide increased mental health literacy, or the skills to seek out information on mental illness and availability of treatments. Such knowledge would aid in the recognition of a problem and the need to receive help, which is a key component to the information-processing model of the decision to seek professional help proposed by Vogel, Wester, Larson, and Wade (2006). The ability to examine the unmet needs of information on mental illness and its treatments as well as information on the availability of services independently would greatly aid our ability to understand this issue.

The results also suggest that, contrary to previous findings in the Canadian literature (Steele et al., 2007; Vasiliadis et al., 2009) income plays an important role in accessing mental health services. Although for every unit increase in income people were 10% more likely to endorse preferring to manage the problem themselves and 9% more likely to not get around to or

bother to seek out treatment, they were also more likely to know where to receive help and less likely to report that the waiting time was too long. It may be that those with higher income levels are more concerned about the services they receive. For example, with respect to substance abuse treatment, people of higher SES were more likely to prefer anonymous forms of intervention such as web-based self-help groups (e.g., Schaub, Sullivan, Haug, & Stark, 2012). However, the results suggest that, for those with high income who do decide to seek treatment, it is readily available in a timely manner. This is likely due to the ability to pay for private services.

It is surprising that income did not predict the barriers of not being able to afford to pay or problems with things like transportation, childcare, or scheduling. When taken in combination with the findings from Study 1, namely that out-of-pocket spending was the greatest predictor of the number of services one would receive in a given year, it may be that these barriers are not predicted by level of income, per se, but rather the availability of disposable income to spend on such services. There are likely many in the lower middle class who are able to afford to pay their bills, but may not have extra income beyond meeting their basic needs. This may be the explanation for the U-shaped relation between income and utilizing specialist mental health services observed in the Netherlands (Alegria et al., 2011), where those with mid-level incomes were the least likely to receive treatment. Alternatively, it may reflect whether people wish to invest their disposable income in mental health services. For example, studies in the United States have shown the demand for medication treatment is inversely related to the required out-of-pocket spending on the medications (e.g., Hillman et al., 1999; Leibowitz, Manning, & Newhouse, 1985).

Overall, the results of SES suggest that education is likely playing a role in recognizing one has a problem and beginning to seek out services. It is only through seeking services that one

can recognize that help is not available and that waiting times are too long. This is consistent with the literature suggesting that education is an important predictor in seeking mental health services (e.g., Bijl & Ravelli, 2000; Donisi et al., 2013; Starkes et al., 2005). Income, however, appears to play the strongest role in whether one will actually receive those services in a timely manner, likely in the private sector. These are very troubling results given that low income is one of the strongest predictors of experiencing a mental disorder (e.g., Caron & Liu, 2010; Giordiano & Lindstrom, 2011; Starkes et al., 2005).

The role of social determinants, psychological distress and barriers to mental health services. As with SES, each of the other social determinant variables as well as psychological distress, played an important, albeit different, role in predicting barriers to mental health services in Canada. Age and distress both predicted several barrier items. Specifically, for each year increase in age people were 1% more likely to report not receiving treatment because they preferred to manage the problem themselves, and yet 2 % less likely to avoid treatment due to fears of asking for help or of what others might think, suggesting there is something different about these two barriers. People were additionally 3% less likely to report personal or family responsibilities interfered with receiving help and 2% more likely to report that professional help was not available in the area for each year increase in age.

Consistent with the literature that distress plays a very strong role in both accessing mental health services (e.g., Mills, Van Hooff, Baur & McFarlane, 2012) and sometimes encountering barriers to seeking treatment (e.g., Elliott et al., 2014), distress was associated with several barrier items. As with the inconsistent findings in the literature, it played a different role with different barrier items. For example, for every unit increase in distress, people were 4% less likely to report preferring to manage the problem themselves. This suggests people were seeking

help for the difficulties they were experiencing. However, for every unit increase in distress people were also 5% more likely to report that help was not available in their area and 4% more likely to report that the waiting time was too long, suggesting that people in need were not receiving help in a timely manner, if at all.

Gender, surprisingly, only predicted two barriers: those related to personal or family responsibilities and not getting around to or seeking help. Not surprisingly, women were more than twice as likely as men to report that personal or family responsibilities prevented them from receiving mental health treatment. Women were also 37% less likely than men to report that they did not get around to or bother to seek help. This is consistent with the literature that suggests women are more likely than men to seek treatment (e.g., Kessler, Brown & Broman, 1981).

Finally, rural/urban location only predicted one barrier. Specifically, people living in urban settings were nearly half as likely as those living in rural to report being afraid to ask for help or of what others might think. This is an important finding with potential implications for researchers and policymakers focusing on issues of stigma. It may be that more focus needs to be placed on anti-stigma campaigns in rural communities.

General Comments on SES in Accessibility and Barriers to Mental Health Services

The purpose of this series of dissertation studies was to examine "both sides of the same coin" with respect to accessibility and barriers to mental health services for Canadians experiencing a mental disorder or substance dependence. Specifically, the studies were designed to examine the specific role SES may or may not play given Canada's universal health care mandated under the Canada Health Act. Although the literature has been mixed on this issue, the tendency has been to argue that SES does not play a major role (e.g., Steele et al., 2007; Vasiliadis et al., 2009) in either accessing or encountering barriers to mental health services in

Canada due to Canada's universal health coverage. Furthermore, many researchers have argued that an entirely separate construct, namely "acceptability" of services has been the major barrier that needs to be focused on, either through improvement of treatments or reduction of stigma towards mental illness (Nelson & Park, 2006; Steele et al., 2007; Wang, 2006). The results of the series of studies in this dissertation, however, suggest otherwise.

Specifically, both income and education were associated with the number of psychotherapy services received in a given year. In fact, income and education were the only two variables included in the model to significantly predict the number of services received. With respect to medication treatment, although no one variable predicted the number of services received, the model as a whole accounted for 15% of the total variance. Most importantly, however, out-of-pocket spending was the strongest predictor of how many services people would receive in a year. When combined with the SES/social determinants model, nearly a quarter of the variance was explained. This suggests that SES as well as out-of-pocket spending (something which will ultimately be affected by one's level of SES), is playing a very strong role in whether or not Canadians will receive mental health treatment. This raises the question as to whether these results are consistent with the spirit of the Canada Health Act.

This premise was further supported in the studies examining barriers to mental health services. Again, both education and income played very important roles on either strengthening or diminishing encountered barriers to treatment. Specifically, higher levels of education were associated with reporting barriers of professional help not being available at the time required, personal or family responsibilities interfering, and waiting times for treatment being too long. These would only be recognized as barriers if one were seeking treatment, therefore, this is consistent with the results of Study 1 where education was associated with accessing treatment.

However, income appeared to play the stronger role in actually receiving treatment, as higher levels of income were associated with a significantly reduced likelihood of reporting not knowing where to get help and/or the waiting time for help being too long. This is consistent with the results of Study 1 that found out-of-pocket spending to be, by far, the most robust predictor of the number of services received. Although income was not a significant predictor of being able to afford to pay for services, when this result is considered in light of the results of Study 1, it may be that it is the amount of income available for spending that is the greater predictor than simply level of income, per se. Taken collectively, it may be that education allows people to recognize they have a problem and begin the process of seeking services, however, income, more specifically available income to spend out-of-pocket, is what is going to ensure one receives the treatment in a timely manner.

General Comments on Social Determinants, Psychological Distress, and Accessibility and Barriers to Mental Health Services

Although the additional social determinants included in this model, as well as psychological distress did not, independently, play as strong a role in predicting accessing mental health services as SES, they did contribute to the overall variance as part of the model. For example, although no single variable significantly predicted the number of services received for medication treatment, as a whole, the model accounted for 15% of the variance. It is likely that these (as well as many more variables) account for the complexity in deciding to seek help for treatment and either receiving services or encountering barriers. Different combinations of factors likely contribute to the ability to get required help (apart from system issues such as waitlists due to limited resources available for the provision of services).

Although these additional social determinants and psychological distress were less robust in predicting the number of consultations people with a mental disorder or substance dependence receive in a given year, they appeared to play a much more important role with respect to encountering barriers to mental health services. Importantly, as with SES, they played slightly different roles depending on the variable encountered. For example, older participants were more likely to report preferring to manage the problem themselves, but less likely to report being afraid to ask for help or of what others might think. People in higher levels of distress were less likely to report that they preferred to manage the problem themselves, but more likely to report that professional help was not available at the time they required it and, consistent with that barrier, that the waiting time was too long. Although women were more likely than men to actively seek help, they were also more likely to report that personal or family responsibilities were interfering. Finally, people living in rural locations were considerably more likely to report they were afraid of what others might think if they sought help. Collectively, it may mean that those who are younger may be more willing to seek help, but also more afraid of what others may think of them for needing this help, particularly those living in rural communities. It also suggests that those in most need of treatment are not receiving it in a timely manner, unless they can pay for it, which is highly problematic.

Overall, the results of these studies argue that SES, as well as other social determinants and psychological distress play a very important role in both accessing and encountering barriers to mental health and substance dependence services in Canada. They also suggest that those most in need are precisely those most likely to experience difficulties in receiving treatment and least likely to be able to seek out treatment. Given that the Canada Health Act explicitly states its purpose 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, s. 3), the results of this dissertation suggest that Canada is coming up short with respect to the "mental well-being" of its residents and eliminating "financial or other barriers." Although the problem is complex and likely goes far beyond the limited number of variables included in this dissertation, examining other models of mental health care, such as those available in the United Kingdom and Australia (cf. Peachey, Hicks, & Adams, 2013), may help to provide feasible, cost-effective, and accessible solutions to help reduce the gap between those in need and the accessibility of mental health services in Canada.

Limitations and Implications for Future Research

Several limitations exist within this series of studies. First and foremost, all data were self-reported therefore there may be some inaccuracies, particularly regarding questions that asked participants to remember events in the past. Furthermore, participants may have, through hindsight, recognized that they required a service in the past that they did not receive at the time of the survey, but they may not have recognized that they needed this help at the time they were experiencing the difficulty. Finally, there are always concerns regarding the social desirability bias and whether participants (particularly those who may be afraid of what others might think) were willing to be fully honest about difficulties they may have experienced. With respect to Study 1, data were heavily skewed towards zero and therefore a number of transformations needed to be utilized. The skewed data also likely reduced the variability of the data and, therefore, the ability of analyses to detect significant differences between participants. This latter issue, however, likely reflects the state of mental health care in Canada more than the survey itself, as most people in Canada will not receive any consultations, and those who do will only receive one consultation with any mental health care provider in a given year. Additionally, the

definition of psychotherapy (i.e., having a session of psychological counselling or therapy that lasted 15 minutes or longer with any professional) is inconsistent with what most professionals who specialize in the provision of therapy would consider a genuine session of psychotherapy (i.e., sessions are likely to be longer than 15 minutes and generally require more than one consultation). Furthermore, although it was possible to separate the data of those who had never had a session of psychotherapy (as defined above) from those who had, it was impossible to separate the data of those who had received at least one session of psychotherapy from those who received medication treatment. Therefore, in the analyses reported in Study 1, the group receiving medication have never had psychotherapy. It is very likely, however, that many in the psychotherapy group were also receiving medication. It would be helpful if future surveys allowed psychotherapy to be measured more accurately and if the data allowed researchers to examine access to each type of treatment independently.

With respect to Studies 2 and 3, the greatest limitation is the inability to separate the different types of unmet need (i.e., information on mental illness and its treatments; information on the availability of services, psychotherapy, medication). It is very likely that people experiencing different types of unmet need would encounter different types of barriers to these needs. The results of this study are likely underestimating the impact of these variables on the barriers encountered. Although there have been repeated calls for papers to examine barriers to mental health treatment (cf. Mohr, Duffecy, Baron, Lehman & Lin, 2010), without the ability to separate types of treatment, it is impossible to fully capture and accurately interpret what is preventing people from accessing these services. The reason why there are so many mixed results in the literature may be due to the fact that, without the ability to isolate specific unmet needs, researchers are likely measuring different constructs with each survey examined. Of the

eleven different types of barriers that were analyzed, each had a slightly different "profile" of social determinants, and each social determinant played a slightly different predictive role depending on the type of barrier being analyzed. Researchers who have combined barriers (e.g., Nelson & Park, 2006; Steele et al., 2007; Vasiliadis et al., 2009; Wang, 2006) are, as demonstrated in Study 2, probably not measuring what they believe they are measuring. Additionally, it is likely (and suggested by the findings) that information on mental illness and its treatments may play an important role in seeking treatment, however, without the ability to separate and examine these unmet needs independently, it is only possible to speculate. Providing information to the public on mental illness, types of treatments, and where to seek this help, as well as expectations for treatment, is something that could be provided relatively easily and at minimal cost (e.g., on websites). It is strongly recommended that future surveys take these issues into consideration to provide better measurement to researchers. It is also recommended, as discussed in Study 2, that national level surveys consider the psychometric properties of scales they include (in addition to sampling issues) to ensure that the data provide valid and accurate results.

Finally, although the purpose of these studies was to investigate whether SES and other social determinants, as well as psychological distress, impact accessibility and barriers to mental health treatment, it is still unknown what specific type(s) of treatment people are receiving and whether SES/social determinants and psychological distress play a role in quality of care. The results of this study strongly suggest that many receiving treatment are not satisfied. Receiving anything may not necessarily be better than receiving nothing at all if the treatment is neither appropriate nor evidence-based. Future research should investigate what types of treatment people are receiving and whether SES/social determinants play a role in receiving appropriate

care in Canada. It should also examine whether the highly limited number of psychotherapy sessions that Canadians are receiving are enough to produce meaningful results. For example, previous research suggests that it takes approximately 6-8 sessions of psychotherapy for 50% of people to improve (Kopta, 2003). Given the number of consultations people appear to be receiving on average (i.e., one consultation) in a given year, it is perhaps not surprising that so many are so dissatisfied. Lastly, although this survey was the most up-to-date at the time these studies were designed, it would be interesting to compare these results with the newest Canadian Community Health Survey data set, recently released, in order to determine whether any improvements in the clear inequality in receiving mental health treatment in Canada have occurred.

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