

A GENDER-BASED ANALYSIS OF THE RELATIONSHIP BETWEEN
INCOME ADEQUACY AND UNMET PERCEIVED NEED
FOR MENTAL HEALTH SERVICES IN CANADA

by

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A Thesis submitted to the Faculty of Graduate Studies of
The University of Manitoba
in partial fulfilment of the requirements of the degree of

MASTER OF SCIENCE

Department of Community Health Science
University of Manitoba
Winnipeg

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TABLE OF CONTENTS

List of Tables	iii
Abstract	v
Acknowledgements	vii
Chapter 1: Introduction	1
1.1. Statement of problem	1
1.2. Purpose of study.....	4
1.3. Research questions.....	4
1.4. Significance.....	6
1.5. Definition of terms used in the study	8
Chapter 2: Literature Review	8
2.1. Prevalence and correlates of mental health in the population	9
2.2. Unmet mental health needs and perceived need for mental health services	19
2.3. Factors related to unmet mental health needs and perceived need.....	23
2.4. Barriers to mental health services.....	28
2.5. Gender based analysis	34
Chapter 3: Methods	37
3.1. Study Design and Data Source	37
3.2. CCHS target population	39
3.3. Study sample	41
3.4. Dependent variables	42
3.5. Independent variables.....	46
3.6. Methodological considerations	54
3.7. Gender based analysis as a conceptual tool	57
3.8. Analytic methods	57
3.9. Ethical considerations	61
Chapter 4: Results	63
4.1. Unmet mental health needs: Estimates	63
4.2. Mental health barriers: Proportions and descriptive statistics	70
4.3. Bivariate analysis	74
4.4. Multivariate statistics/Modeling	83
Chapter 5: Discussion/Conclusion	89
5.1. Summary of key findings	89
5.2. Discussion of key findings	93
5.3. Implications of study and next steps	97
5.4. Limitations of the study	101
References	104

LIST OF TABLES

Table 1: <u>Population estimates of unmet perceived need for mental health services by age and gender</u>	64
Table 2: <u>Population estimates of unmet perceived need for mental health services by gender and Income adequacy</u>	65
Table 3: <u>Distribution of age, and income adequacy in group with perceived need by gender</u>	66
Table 4: <u>Estimating unmet mental health service needs in Canada</u>	66
Table 5: <u>Estimating unmet mental health service needs by gender</u>	68
Table 6: <u>Proportion of the Canadian population reporting each type of unmet need, by gender</u>	69
Table 7: <u>Proportion of those with unmet needs who cite each type of need, by gender</u>	70
Table 8: <u>Proportion of reported barriers to mental health services in Canadian population and in the sub-sample</u>	71
Table 9: <u>Comparison of reported barriers by gender</u>	73
Table 10: <u>Socio-demographic variables among those with and without perceived need for mental health services by gender</u>	74
Table 11: <u>Proportion of health related and psych-social factors</u>	76
Table 12: <u>Psych-social measures</u>	77
Table 13: <u>Proportion of unmet PN for mental health service by income adequacy</u>	79
Table 14: <u>Odds of reporting unmet PN mental health services by income adequacy: Both genders</u>	79
Table 15: <u>Odds of reporting unmet PN mental health services by income adequacy</u> ...	80
Table 16: <u>Odds of reporting unmet PN for mental health services by income adequacy adjusting for age</u>	80

<u>Table 17: Odds of reporting unmet PN for mental health services by income adequacy, adjusting for age and mental disorder</u>	81
<u>Table 18: Odds of reporting unmet perceived need for mental health services by gender</u>	82
<u>Table 19: Proportion of Unmet perceived need for mental health services by income adequacy</u>	82
<u>Table 20: Odds of reporting accessibility, acceptability or availability barriers by income adequacy</u>	83
<u>Table 21: Final logistic regression model, with bootstrap weights</u>	87
<u>Table 22: Model comparisons</u>	89

ABSTRACT

Objectives: This study was a secondary analysis of Canadian Community Health Survey (Cycle 1.2) on Mental Health and Wellbeing to determine the prevalence of unmet perceived need for mental health services and the barriers to those services reported in Canada using a gender-based analysis, and to determine the relationship between gender, income adequacy and unmet perceived need for mental health services. **Method:** Data was disaggregated by gender to estimate the number and proportion of men and women reporting unmet perceived need for mental health services and barriers to those services. Chi-square and t-tests were used to evaluate the differences between those with reported unmet perceived need for mental health services to those without, on selected measures of socio-demographic, cultural, health-related and psych-social measures. Multiple logistic regression models were used to determine the unique contribution that both income adequacy and gender had on unmet perceived need for mental health services after adjusting for factors that were correlated with the outcome measure. **Results:** It was estimated that 5.5% of Canadian girls and women, and 3.6% of Canadian boys and men reported an unmet perceived need for mental health services in the year prior to the survey. Significant differences ($p < .05$) observed for all measures of socio-demographic, cultural, health-related, psych-social, social support and mental health service use measures, between those who reported unmet perceived need for mental health services to those who did not. Bivariate analysis revealed an inverse relationship between income adequacy and unmet perceived need for mental health services. This relationship was observed for both genders. Compared to respondents in the highest income category, respondents in the lowest income category were 2.43 times more likely to report unmet

perceived need for mental health services. Multiple logistic regression analysis revealed that being female was found to significantly predict unmet perceived need for mental health services after controlling for age, use of mental health resources in the past, having a mental illness in the past year, and other socio-demographic, cultural, health related, psych-social and social support confounding factors. Income adequacy did not remain in the final model.

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CHAPTER 1: INTRODUCTION

This study is a secondary analysis of the Canadian Community Health Survey (CCHS Cycle 1.2) on Mental Health and Wellbeing. This research sought to answer the following research question: What is the relationship between income adequacy and unmet perceived need for mental health services in Canada using a gender-based analysis? To answer this research question, the study had three main research objectives:

- a) To estimate the prevalence of unmet perceived need for mental health services and the barriers to those services by Canadian men/boys and women/girls.
- b) To evaluate the differences between those with unmet perceived need for mental health services to those without, on selected measures of socio-demographic, cultural, health-related, psych-social, social support and mental health service use measures.
- c) To determine the relationship between gender, income adequacy and unmet perceived need for mental health service and barriers to mental health services. Furthermore, to determine whether income adequacy and gender predict unmet perceived need for mental health services after controlling for other factors that are related to unmet perceived need for mental health services.

1.1. STATEMENT OF PROBLEM

It is generally understood that stress, distress, poor mental health and mental illness are highly prevalent in North American societies. Approximately 2.6 million Canadians, or one out of every 10 Canadians over the age of 15 years reported symptoms consistent

with alcohol, drug dependence or one of the five mental disorders covered in the Canadian Community Health Survey in 2002 (Statistics Canada, 2003).

Despite the high prevalence of mental illness and stress and distress in North American societies, a persistent finding from population health surveys is that only a minority of adults with mental illness or with mental health symptoms receive mental health care services. It has been estimated from the Canadian Community Health Survey that only 32% of individuals that meet criteria for one of the surveys mental disorders received treatment in the year prior to the survey (Statistics Canada, 2003). Data collected with the Canadian Community Health Survey in 2002 found that 21% of individuals with any of the surveyed mental disorders or substance dependencies reported feeling they needed help for their emotions, mental health or use of alcohol or drugs, but did not receive it during the 12 months prior to the interview (Statistics Canada, 2003). Reasons given for not receiving these services included: 'preferring to manage themselves', 'did not get around to it' and 'were afraid to ask for help' (Statistics Canada, 2003).

Research that investigates mental health care treatment seeking or the factors that are related to unmet mental health care needs typically focuses on adults with a diagnosable mental disorder (Mojtabai, Olfson, Mechanic, 2002; Bergeron, Poirier, et al., 2005; Wang, Pattern et al., 2005) or individuals that have sought mental health treatment (Bland, Newman, Orn, 1997; Bland, Newman, Orn, 1990; Katz, Kessler, Frank, Leaf, Lin, Edlund, 1997). These studies find that gender, age, income, education and ethnicity are related to treatment seeking for mental services. Less is known about the factors that influence treatment seeking and barriers to mental health care services for individuals that

believed themselves to be in need of mental health care but did not seek services. In order to get a fuller picture of the barriers and factors related to unmet mental health service needs in Canada, more research is needed that takes into account one's own perception that they were in need of help for mental health problems but did not receive it. Only recently has research begun to address both the prevalence of perceived unmet mental health needs in Canada and the correlates of perceived need (not exclusive of having a diagnosable mental health illness) (Sareen, Cox, et al., 2005; Borgeron, Poirier, et al., 2005).

Gender (Rhodes and Goering, 1994) has been found to be associated with mental health service use, and mental health service needs in Canada (Rhodes and Goering, 1994; Lin, Goering, Offord, Campbell & Boyle, 1996), and income has been found to be associated with mental health illness and need for services in Canada (Wang and El-Guebaly, 2004; and Alegria, et al., 2000). But less is known about how these two variables specifically relate to self-reported *unmet* mental health service needs or how income may impact men and women differently in their perception of barriers to mental health services in Canada or how it may impact unmet perceived needs for mental health care services.

Gender based analysis aims to provide gender specific results and to clarify the differences between girls/women and boys/men, the nature of their social relationships and their different social realities, life expectations and economic circumstances. Gender based analysis identifies how these conditions affect women's and men's health status and their access to and interaction with the health care system (Health Canada, 2000). GBA is a fairly recent tool and has not yet been applied to studies that utilize the CCHS

1.2. In addition, studies that investigate gender as it related to unmet mental health needs or barriers tend to use the concept of gender as a confounding factor and do not seek to determine the differences or similarities between men and women regarding unmet mental health service needs or barriers to those services.

1.2. PURPOSE OF STUDY

The purpose of this study was to determine the relationship between income adequacy and unmet perceived need for mental health services in Canada using a gender-based analysis. Specifically a secondary analysis of quantitative survey data was conducted using the Canadian Community Health Survey (CCHS 1.2) to:

- Estimate the prevalence of unmet perceived need for mental health services and the barriers to those services by Canadian boys/men and girls/women.
- Evaluate the differences between those with unmet perceived need for mental health services to those without, on selected socio-demographic, cultural, health related and psych-social factors.
- Determine the relationship between gender, income adequacy and unmet perceived need for mental health service and barriers to mental health services. And to determine whether income adequacy and gender predict unmet perceived need for mental health services after controlling for other factors that are related to unmet perceived need for mental health services.

1.3. RESEARCH QUESTIONS

To complete the objectives set out in the purpose of this study, several research questions were addressed. Specifically the research questions were as follows:

Unmet perceived need for mental health services:

1. What is the proportion and estimated number of girls and women aged 15 or older with unmet perceived need for mental health service in Canada? What is the proportion and estimated number of boys and men aged 15 or older with unmet perceived need for mental health service in Canada?
2. Are there any differences between those that reported unmet perceived need for mental health services in the past year to those that did not report unmet perceived need for mental health services on: socio-demographic, cultural, health-related, psych-social, social support and mental health service use measures?
3. What is the relationship between income adequacy, gender and unmet perceived need for mental health services in the Canadian population?
4. Does gender or income adequacy predict unmet perceived need for mental health services in the Canadian population after controlling for the effects of other correlated factors?

Barriers to mental health services:

5. For individuals that reported unmet perceived need for mental health services in the past year, what are the reported barriers (or reasons given) for not receiving mental health services in Canada?
6. What is the gender specific relationship between income adequacy and reported barriers (reasons given) to mental health services for those that reported unmet perceived need for mental health services?

Hypothesis

In this study it was hypothesized that the proportion of Canadians reporting barriers to mental health services will be higher than what studies report regarding

general health services due to the way these services are provided in the Canadian health system. Low income may be a larger barrier to receiving mental health services compared to general health services for non-mental/emotional issues due to the actual cost involved in receiving mental health services in Canada. Most mental health services, such as services provided by clinical psychologists, are not typically covered through provincial insurance. Therefore it is hypothesized that being female and having low income adequacy will increase the odds of having unmet perceived need for mental health services.

1.4. SIGNIFICANCE

This study will add to the literatures on mental health treatment seeking behaviour and unmet needs for mental health services in general in Canada. The knowledge created can also be used to determine some of the modifiable factors that are associated with unmet mental health needs (e.g., income adequacy). Thus, the findings of this study can be used by public health policy makers and planners to ensure that those in need could receive appropriate care and services. In addition, this research applies gender based analysis to identify gender-specific patterns of unmet mental health needs and perceived barriers. This information can be used by health and social policy makers and planners to design gender-specific strategies and programs to address the specific needs of the two sub-populations: Canadian men and women. This is an area that has not been previously studied using gender as an analytic and conceptual tool to understand the differences between unmet mental health care service needs and barriers to services for Canadian men and women.

Previous studies that examined unmet mental health needs have typically focused on samples with diagnosed psychiatric illness. Less is known about the sample of individuals that have identified themselves as in need of treatment for emotional or mental issues but had difficulty receiving that treatment. The proposed research will advance understanding of the treatment seeking process by examining the barriers to mental health treatment as perceived by the individuals wanting mental health treatment who did not receive it.

There is currently little Canadian information available on barriers to health care services for individuals that identify themselves as in need of those services for both general and mental health services. One of the only Canadian studies that examined barriers to perceived unmet health needs did not separate mental health services from general health services (Wilson & Rosenberg, 2004). Wilson & Rosenberg (2004) found that in a Canadian sample, 6% of respondents reported not receiving care when needed. Wilson & Rosenberg excluded from their analysis individuals under the age of 25. The research presented here will include young adults and teenagers. Therefore, in this study, by including all respondents aged 15 or older regardless of whether they have been determined to have a major mental illness describes a 'fuller' picture of accessibility to mental health care services in Canada and the perceived barriers to receiving care/services.

Another strength of this study is that it used a nationally representative sample of Canadians to examine the proportion of the Canadian population (as opposed to the subset that were categorized as having a major mental disorder) who reports difficulty in

accessing mental health services for mental/emotional health issues as well as the barriers to receiving those services.

1.5. DEFINITION OF TERMS USED IN THE STUDY

Gender based analysis (GBA)

Gender-based analysis or GBA is an analytic tool that uses gender as an organizing principle. It helps to clarify the differences between women and men, the nature of their social relationships and their different social realities, life expectations and economic circumstances. It can be used to identify how these conditions affect women's and men's health status and their access to and interaction with the health care system.

Canadians and Canadian Households

The term 'Canadians' or 'Canadian households' when used to discuss the data collected in the CCHS 1.2., refers to the proportion of Canadians that the data is representative of. The CCHS 1.2. covers approximately 98% of the population aged 15 or older in the ten provinces. This excludes those living in the Territories and on Indian Reserves and Crown Lands, health Care institution residents, clientele of institutions, full-time members of the Canadian Armed Forces and residents of certain remote regions (Statistics Canada, 2003).

CHAPTER 2: LITERATURE REVIEW

The purpose of this literature review is to discuss:

- a) Prevalence and correlates of mental health problems in the population
- b) Unmet mental health needs and perceived needs for mental health services
- c) Factors related to or contributing to unmet mental health needs and perceived needs

d) Barriers to health and mental health services

2.1. PREVALENCE AND CORRELATES OF MENTAL HEALTH IN THE POPULATION

It is generally understood that stress, distress, poor mental health and mental illness or psychiatric disorders are highly prevalent in North American societies. Prevalence does not necessarily equate with *need* for mental health services, but it is an important topic in describing the burden of mental health problems and illness in the population.

Prevalence of Mental Illness/Disorder

Health Canada (2002) estimates that 20% of Canadians will experience a mental illness during their lifetime. Mental illness is understood to negatively impact Canadians both directly and indirectly by affecting relationships, education, productivity and quality of life (Health Canada, 2002).

Research that examines mental illness in a population typically measures the prevalence of mental illnesses in health record data or with structured interviews based on diagnostic criteria for mental disorders in population health surveys. A recent study that examined mental illness by diagnosis and service use with administrative data in Manitoba was done by Martens and colleagues (2004). They found that 36.9% of the population of Manitoba had one or more mental illness as indicated by physician claim data (including mood, anxiety, substance abuse, schizophrenia, personality, and dementia disorders).

In Canada, the most noted population health surveys have included the Ontario Health Survey--Mental health supplement, the National Population Health Survey

(NPHS) and the Canadian Community Health Survey of Mental Health and Well Being 1.2. (CCHS 1.2.). Although the data does have some variability (related to different assessment tools or methodology), the various surveys have produced similar prevalence rates within Canada.

The Mental Health Supplement to the Ontario Health Survey (OHS) was a province-wide, cross-sectional, epidemiologic survey of psychiatric disorders among individuals aged 15 years or older living in Ontario (Boyle, et al., 1996). The supplement measured the prevalence of 14 psychiatric disorders using a structured diagnostic interview. It was reported that approximately 1 in 5 Ontarians, or 18.6% of those surveyed had one or more of the disorders measured by the supplement in the year prior to the survey; 14.2% of respondents had only one of the surveyed disorders and 4.5% had two or more disorders (Offord et al., 1996). The estimated prevalence for each of the surveyed disorders is as follows:

- 12.2% met criteria for at least one anxiety disorder (including: panic disorder, social phobia, simple phobia, agoraphobia or generalized anxiety disorder),
- 4.5% met criteria for at least one mood/affective (including: major depressive episode, dysthymia and manic disorder),
- 5.2% met criteria for a substance use disorders (including: alcohol abuse/dependence, marijuana abuse/dependence or other substance abuse/dependence),
- 2.2% met criteria for antisocial behaviours (including: antisocial personality or adult antisocial behavior), and

- 0.5% of those surveyed met criteria for an eating disorder in the year prior to the survey.

The OHS measured the prevalence of 14 psychiatric disorders, the Canadian Community Health Survey (CCHS 1.2) only measures prevalence of 7 mental disorders in the population. However, it is a national survey which estimates at the Canadian population level. The survey provides estimates for Canadian households living in the 10 provinces of Canada (excluding those living in the territories, on Indian Reserves, Crown Lands, full-time members of the Canadian Armed Forces, residents of institutions or certain remote regions).

The seven major mental disorders that the CCHS 1.2. measures with a structured interview include: major depression, mania disorder, agoraphobia, panic disorder, social anxiety disorder, alcohol dependence and dependence on illicit drugs. According to Statistics Canada (2003) 10.4% of Canadians aged 15 and over or an estimated 2.6 million Canadians, reported symptoms consistent with the measured mental disorders or substance dependence covered in the survey at some point during the 12 months prior to the interview. The prevalence rates for each of the surveyed disorders are as follows:

- 4.5%, approximately 1.1 million people, met criteria for major depression
- 0.8%, approximately 190, 000 people, met criteria for manic disorder
- 4.7%, approximately 1.1 million people, met criteria for an anxiety disorder (including panic disorder, agoraphobia or social anxiety disorder)
- 3.0 %, approximate 740, 000 , met criteria for a substance use disorder (including alcohol or illicit drug dependence)

To help put these prevalence rates into context, it should be noted that in the CCHS 4.5% of the people interviewed reported symptoms that are considered to be consistent with major depression, compared to 5% with diabetes, 5% with heart disease and 6% with a thyroid condition (Statistics Canada, 2002).

Stress, Distress, Mental Health/Well-being

Psychiatric or mental illness may represent the one end of a continuum, but other forms of poor mental health are also prevalent. Poor mental health, stress and distress are both correlates of mental illness and can be experienced without a diagnosable form of mental illness or psychiatric disorder. It is valuable to discuss the prevalence of stress, distress and mental health problems separate from mental disorder as it gives a fuller picture of overall mental health problems in the population. In addition, there is also a large proportion of individuals that seek or need mental health services but do not have a diagnosable mental disorder. Sareen et al reported that 6% of Canadians had perceived a need for mental health services or used mental health services in the previous year and met criteria for one of the psychiatric disorder in the CCHS 1.2. Alternatively, 8.8% of Canadians in the survey did not meet criteria for a survey psychiatric but were found to have either sought mental health services or perceived a need for mental health services in the previous year. Bland and colleagues (1997) found that 37.6% of those that sought treatment in the year previous to the survey in Edmonton did not meet criteria for a specific mental disorder.

There are many different ways to measure stress, distress and mental health problems in the Canadian population. The CCHS 1.2 is one of the more recent population health surveys done in Canada to produce information about the mental health

of Canadians. Statistics Canada has produced many data tables summarizing some of the measures of psychological health that is measured in the survey. Statistics Canada (2002) reported that 4.5% of the Canadian population reported that they “needed help for their emotions, mental health or use of alcohol or drugs but did not receive it” in the year prior to the interview. In addition, according to the same source 30.4% of Canadians (28.7% of men, 32.5% of women) reported their work as being either quite a bit stressful or extremely stressful, using data from the CCHS 1.2. Carter and colleagues (2004) reported that 4.6% of Canadians (4.5% of men and 4.7% of women) reported that they were dissatisfied with life, and 6.9% of the population (6% of men, and 7.7% of women) rated their mental health as fair or poor, in the CCHS 1.2. Mental health status was assessed with a question that asked “In general, would you say your mental health is: excellent, very good, good, fair or poor?” It should be noted, that this information is purely descriptive in nature, as this report did not examine the correlates or covariants of these psychological measures or determine whether there is a statistically significant difference between men and women.

Stephens and colleagues (1999) analyzed the data in the 1994/1995 NPHS to determine the correlates of 8 measures of mental health. They found that 6% of Canadian households reported an episode of depression. Depression was measured with a set of questions to determine whether an episode of clinical depression was present in the previous 12 months. Distress was assessed with a 6 item symptom checklist to measure the degree of anxiety and depression symptoms. High distress was arbitrarily defined as a score of 5 or greater (based on a possible total of 0-24 points). The impact on life was measured with a single question: “How much do these experiences usually interfere with

your life or activities?” If respondents answered “a lot” or “some” they were categorized in the study as being affected by distress. Using this method, Stephens and colleagues (1999) found that 29% of Canadians had a high level of distress and 16% were considered to be affected by distress. In addition, cognitive impairment was measured with two questions about thinking and remembering, in the NPHS. Impairment was defined as “unable to remember anything at all”, “unable to think or solve problems” or “some difficulty thinking. According to this data, it was estimated that 9% of the population covered by the NPHS had some cognitive impairment (Stephens et al., 1999).

Factors Related to and Contributing to Mental Health

For the purposes of this research it is important to review the literature on the factors related to and contributing to mental health problems, or specifically to stress, distress and mental illness in order to determine the factors that are potentially related to unmet perceived need for mental health services.

A recent report published by Health Canada (2002) synthesized Canadian data from hospitalization records and found three main factors that are related to mental illness: age, gender and poverty. Canadian women were found to be more likely to have a mental illness compared to Canadian men. In addition, an inverse relationship was found between mental illness and age and income. That is, individuals of younger age and lower incomes are more likely to be affected by mental illnesses. Nearly half of all admissions to hospital for one of the seven most common mental illnesses was for adults between the ages of 25 and 44 years. Canadians between the ages of 45 to 65 accounted for only 25% of the admissions (Health Canada, 2002). A limitation with hospitalization records, as discussed in Health Canada’s report (2002) is that the majority of people with

mental illness are treated in the community rather than in hospital, and many would be treated outside of the formal health care system. Therefore, hospitalization data would not account for the individuals who never seek or receive treatment for mental illness.

There is also evidence from the population health surveys that age and income are related to mental illnesses in the population. (The relationship between gender and mental illness as measured in population health surveys is less clear and will be discussed in a later section.) For example, Offord, Boyle, et al. (1996) in their study of the prevalence of psychiatric disorders in Ontarians, found that younger adults were more likely than older adults to have one of the surveyed mental disorders. Age and gender have also been found to be related to measures of mental health and well being. Stephens et al. (1999) analyzed the 1994/95 NPHS to determine the correlates of 8 measures of mental health with demographic and psychosocial determinants. Their regression analysis revealed consistent gender differences on mental health indicators, suggesting modestly better mental health for males than females. After controlling for other factors such as childhood traumas, current stress, life events, social support, physical health and restriction of activities, gender differences remained on three of the 4 indicators of negative mental health. Women were more likely than men to have depression, have a higher level of distress, and report that distress affects their life. There was also a consistent association between mental health measures and age. Younger age was associated with poorer mental health measures. Regression analysis revealed that poorer mental health was more common among youth than older age groups for most indicators. Perhaps they may have found different results if they had included income in their regression equation. The authors suggest that the lack of association between income

adequacy and the mental health variables is consistent with the idea from Ross and Van Willigen (1997). As discussed by Stephens and colleagues (1999), Ross and Van Willigen (1997) suggest that education is responsible for psychological well-being. Education is seen by the authors as improving psychological well-being because it provides access to work that is non-alienating independent of income. They further explain that having a sense of mastery over one's work is related to greater life satisfaction and less depression.

With regards to psychosocial variables, Stephens, Dulberg and Joubert (1999) found that current stress was one of the strongest correlates of mental health status, being strongly and consistently related to all positive and negative measures of mental health status. Social support was slightly less important than current level of stress in its association with mental health. It was also observed that the number of chronic physical health problems was closely associated with depression and cognitive impairment. Physical restriction was associated with all four mental health problems. The authors did not determine the association between their measures of psychosocial variables (childhood traumas, current stress, life events, social support, physical health and restriction of activities) and socio-demographic variables.

There are also a number of psychological factors that have been identified to be related with mental illness. These factors include stressors, social support and coping. Mental illness has been viewed in the research to be dependent on both the experience of stressors and the buffering and intervening effects of social support. Those with high levels of social support are less likely to experience stress and distress in relation to stressors (Avison & Gotlib, 1994).

In a cross-national comparison of the prevalence and correlates of mental disorders in 7 countries (World Health Organization, 2000) it was found that the prevalence of mental disorders were significantly associated with socio-economic measures of disadvantage including low income, low education, unemployment and those who were unmarried.

Studies addressing gender in population health surveys

The association between gender and mental illness is less clear in population health surveys, as it seems to be dependent on which mental illnesses are measured. It was reported (Statistics Canada, 2003) that in the CCHS 1.2. the overall prevalence rates for the surveyed seven mental health disorders and substance dependencies were about the same for women and men. An estimated 1.4 million women, or 11% of Canadian women experience at least one of the seven surveyed mental illnesses compared with 10% or 1.2 million Canadian men. This report did find gender differences regarding the type of mental illness. Mood and anxiety disorders are more common for women (6% among women % vs. 4% among men). However, the prevalence rate for substance dependence on alcohol and illicit drugs was found to be more common for men than for women, 4% vs. 2%.

Gender differences regarding type of mental disorder was also found in the Ontario Health Survey (OHS). According to Offord and colleagues (1996) 15.5% of women compared to only 8.9% of men had at least one of the five surveyed anxiety disorders in the year prior to the interview. This relationship was consistent across all age categories. For both genders, the prevalence of anxiety disorders decreases with age. Women were also significantly more likely than men (5.9% of women vs 3.2% of men)

to have at least one of the three surveyed mood disorders, including depression, in the year prior to the interview. The relationship was consistent across age groups, with the highest prevalence among the youngest women (aged 15-24). Men were significantly more likely than women (8.2% of men vs. 2.1% of women) to have at least one of the three surveyed substance use disorders in the year prior to the interview. This relationship was consistent across all age categories. According to Offord et al. (1996), the prevalence for substance use disorders decreases with age for both genders.

Income and Mental Health

Many studies have found an inverse relationship between income and mental illness (as reviewed by Health Canada, 2002). That is, those with lower income have more mental health issues and mental illnesses. Two frameworks have been proposed to explain this relationship (Eaton & Muntaner, 1999). The first framework is that of “selection and drift”. The theory is that certain individuals may be predisposed to both mental illness and to lower expectations/ambition which results in lower levels of educational and occupation/financial success. Poverty is then associated with the lower level of attainment in educational pursuits. The association then between poverty and mental illness from this perspective is indirect. The “drift” refers to drift into poverty as a result of not attaining and maintaining regular employment. The second framework is referred to as “social causation” as discussed by Eaton and Muntaner (1999). This framework views the relationship between poverty and mental illness as a direct association where the experience of having low income increases the likelihood of developing a mental illness. For example, in this framework living in poverty may result in fewer social and economic opportunities, which can result in feelings of hopelessness,

anger and despair. Poverty may also increase the likelihood of experiencing chronic or traumatic stress, resulting in an increased risk of mental illness.

Gender and mental health

Gender has been identified by proponents of gender-based analysis to highlight, study and to discuss with regards to mental health (Salmon, et al., 2006). Gender is an important construct to examine in mental health research because in North American societies gender affects the way that women and men are thought of, treated and live their lives resulting in differential access to life choices, economic status, education, health and health care (Papanek, 1984; Ad hoc working group on women, 2006). The report issued by the Ad hoc working group on women (2006) discusses that women and men's health care needs are different because of the biological differences in their bodies, and because of the differences in how both genders live, work, earn money, spend their leisure time and raise children. The report identifies factors that are more likely to disproportionately affect women and their mental health, including having less financial security, work part-time and have less access to health benefits. Women are also more likely to be the victims of childhood abuse, interpersonal partner abuse and sexual abuse. Women are more likely to be burdened with care giving and childcare responsibilities, which has been linked in the literature to increased stress and has implications for women's mental health (Myles, 1991). Women are also more likely to be poor than men in Canada; particularly elderly women, Aboriginal women and single mothers (Morris, 2002).

2.2. UNMET MENTAL HEALTH NEEDS AND PERCEIVED NEED FOR MENTAL HEALTH SERVICES

A persistent finding from population health studies is that only a minority of individuals with mental illness receive treatment. A report by the World Health Organization (2000b) has stated that the problem of unmet need for treatment is much more severe for mental disorders than for other medical disorders.

Estimates of Unmet Mental Health Needs and Perceived Need

Studies that address the issue of unmet mental health needs tends to focus on those that meet criteria for psychiatric disorder in population health surveys that did not receive mental health treatment or those that sought help for mental health services. These studies consistently find that only a minority of adults with mental illness receive mental health services. Data collected with Canadian Community Health Survey in 2002 found that only 32% of those who had feelings and symptoms consistent with the surveyed mental disorders or substance dependencies saw or talked to a health professional during the 12 months prior to the survey (Statistics Canada, 2003). Bland, Newman and Orn (1997) in a random sample of approximately 4000 adults living in Edmonton, Alberta; found that 71.9% of those with a psychiatric disorder did not seek help in the year prior to the interview.

The research finding that most individuals with a psychiatric disorder do not receive treatment may be related to barriers to services or it may be because not all of those individuals with a psychiatric diagnosis require treatment or need treatment. Some researchers have suggested that some individuals with a mental disorder may have transient or mild symptoms which would not require treatment (Spitzer, 1998; Regier et al., 1998). Alternatively, there is a large proportion of individuals that do not meet criteria for psychiatric illness or disorder that seek help for mental health needs or

perceive a need for mental health services. Bland, Newman and Orn (1997) found that 37.6% of those that sought treatment in the year previous to the survey did not meet criteria for a mental disorder. Therefore, perceiving the need for treatment is an important variable in determining the proportion of the population in need of mental health services.

Sareen and colleagues (2005) found that in a nationally representative sample of Canadians, 12% had a self-perceived need for mental health treatment (defined as either help-seeking or perceived need without help seeking). They also found that individuals who perceived a need for mental health services but did not seek services, had similar levels of distress to those who sought help for mental health services.

Sareen and colleagues (2005) performed regression analysis to determine the correlates of perceived need for mental health services. They found that after adjusting for other related factors (psychiatric diagnosis, sociodemographics and social supports) perceived need and help seeking were associated with increased levels of distress, disability and suicidal ideation and attempts. The authors concluded that the respondent's self-perceived need for mental health treatment is important in the assessment of need for mental health services in the community. It is important to note that 'perceived need' for mental health services was defined as having endorsed the question: "during the past 12 months, was there ever a time when you felt that you needed help for your emotions, mental health, or use of alcohol or drugs, but you didn't receive it" and had not seen a professional about their emotions, mental health or use of alcohol or drugs in the past 12 months. Analysis was done either comparing those with perceived need to those that sought help or they combined those with perceived need with

those that sought help to compare them to people who had neither. The limitation of excluding those who sought help for mental health problems from the group being defined as having 'perceived need' is that the two may be unrelated. It is possible to have sought help in the past for one problem and have perceived unmet needs for another problem. Other studies that estimate perceived need in the community includes a study by Katz and colleagues in 1997 that found that 11.7% of the sample surveyed in the Ontario Health Supplement had a perceived need for treatment.

A recent publication (Statistics Canada, 2003) noted that 21% of those individuals with one of the surveyed mental disorders reported feeling they needed help for their emotions, mental health or use of alcohol or drugs, but did not receive it during the 12 months prior to the interview. In other words, 21% of those with a mental disorder had unmet perceived needs. This report was descriptive in nature and did not examine relationships between variables or investigate variables further with multiple regression procedures. In addition, this report focused on individuals with a diagnosable mental disorder.

Perceiving the need for mental health services is not only important in receiving mental health services, but is also useful in estimating the proportion of the population with unmet needs. Unfortunately, there is a paucity of information available on the correlates and predictors of perceived unmet need and perceived need.

Type of unmet need

Meadows, Burgess and colleagues (2000) examined patterns of five types of perceived need for mental health services in Australia, including needs for medication, counseling, social interventions, skills training and information about mental illness and

its treatment and availability. The researchers found that perceived need for medication being met was 4 times more likely to have been met than counseling needs being met. Similarly, Sareen, Cox and colleagues (2005) found that in Canada, the most common need endorsed by respondents in the CCHS 1.2. survey was the need for counseling (49.5%), help for personal relationships (21.6) and information on mental illness or treatment (20.2%). Only 7.7% of the sub-sample reported unmet needs for medications.

2.3. FACTORS RELATED TO UNMET MENTAL HEALTH NEEDS AND PERCEIVED NEEDS

To determine the estimates of unmet mental health needs and its correlates in the literature it will be useful to review the literature on: unmet needs in population health studies, perceived unmet mental health needs, and help-seeking for mental health issues. This is necessary because as discussed in Aoun, Pennebaker and Wood (2004), there have been many studies that have examined the correlates of mental health service use, but few studies have identified the correlates of perceived need or perceived unmet needs for mental health services. In addition, studies of service use are often used to determine mental health needs in a population.

Factors related to and contributing to Help-Seeking

Bland, Newman & Orn (1997) examined the demographic and clinical determinants of seeking help for mental or emotional problems in a random sample of approximately 400 adults living in Edmonton. With regards to socio-demographic factors, regression analysis found that being: female, widowed, separated, divorced or unemployed significantly increased the odds of seeking help. There was also a trend for younger people to be more likely to seek help. Socio-demographic variables that were

also included in regression models that were significantly associated with seeking help for mental or emotional problems included: lower levels of education and lower levels of income. However, after controlling for the effects of all potential predictors, only gender, age and severity of illness were found to be significantly related to the outcome. The researchers also found that a higher proportion of those with major depression sought help compared with the other two disorders (generalized anxiety disorder and alcohol dependence) that were examined in the study.

A few studies on the correlates of mental health service use have been conducted in Australia. For example, Parslow and Jorm (2000) examined socio-demographic and psychological factors associated with use of mental health services in Australia. They specifically used a behavioral model developed by Anderson and Newman (1973), which explains health service utilization based on three categories of predictor variables: need, predisposing and enabling factors. Parslow and Jorm (2000) found that the need variables that were associated with mental health service use included: meeting criteria for a mental disorder or self-identifying as having a mental health problem. Predisposing and enabling factors that were associated with service use included: being female, being separated and having a higher education. The authors suggested that women might be more likely to adopt the help-seeking role or self-identify as having a mental health problem.

Beiser and colleagues (1993) have reviewed the literature to determine whether mental health care in Canada is accessible and equal. To focus their review on mental health utilization they used a three-part model that stresses need, predisposing factors and enabling factors to determine treatment seeking. Predisposing factors are factors that

affect decisions about whether to seek help for emotional/psychological symptoms or to ignore it. Predisposing factors help determine attitudes towards the health care system and shape ideas about when and how to seek treatment. The authors have noted that predisposing factors account for part of the explanation observed for the gaps that exist between need for mental health service and receiving mental health services. In their review, the authors concluded that gender, age, and culture are predisposing factors to mental health care utilization. With regards to gender, Beiser et al. (1993) noted that the literature suggests that men seek care for emotional and mental disorders late in an illness episode and they use the mental health sector directly. By contrast, women with emotional disorders or distress are less likely than men to use the mental health care sector as their first treatment option, relying instead on friends and social contacts. Age was seen as a predisposing factor as elderly individuals who were distressed tended to rely on their spouses for support. With regards to culture, Beiser et al. (1993) claims that in Canada, immigrant groups have equivalent levels of need but use fewer mental health services than majority culture Canadians.

Factors related to and contributing to unmet needs and perceived need for mental health service

Sareen, Cox, Afifi, Clara and Yu (2005) examined the prevalence and correlates of perceived need and help seeking in the CCHS 1.2. With regards to socio-demographic factors, regression analysis revealed that help seeking or perceived need was significantly associated with: gender, age, ethnicity, immigrant status, marital status, education and income. These associations remained after adjusting for psychiatric diagnosis. Other variables that were significantly associated with perceived need or help seeking in

regression analysis included: receiving social assistance, low social support, poor psychological well-being, high level of distress, disability due to mental health in the past two weeks, suicide ideation or attempt in the past 12 months, and long term reduction in activities and psychiatric diagnosis.

An interesting paper recently published by Aoun, Pennebaker and Wood (2004) has summarized the various approaches and studies to assess need for mental health care. The authors produced a list of variables that have been found to be predictive of need as defined by all of the various approaches to studying need including: surveys of the general population that estimate psychiatric illness, general population studies that address perceived need, and studies that examine the predictors of need. This summary lists the following variables as predictors of mental health needs: being female, low socioeconomic status, not married, unemployment, educational status, household and tenure type, number of people living in the household, ethnic background, low income, disability, presence of comorbidity and living in rural areas.

Treatment Seeking and Gender

Women are more likely to use both general health care services and mental health care services. Drapeau, Lesage and Boyer (2005) found that women are 2.9 times more likely than men to use primary health care services for mental health reasons compared to men in the CCHS 1.2. Miranda and Bruce (2002) have summarized areas where research is needed to answer questions regarding gender differences in overcoming barriers to appropriate mental health care. The authors noted that the role of societal stigma in terms of either women's or men's access to mental health care has not been adequately studied. For example, they speculate that fear of losing custody of one's children may inhibit

some women from seeking care, where as fear of jeopardizing one's career may inhibit some men from seeking mental health care. Miranda and Bruce (2002) noted that a considerable body of research has documented that women are more likely than men to recognize depressive symptoms, less likely to see mental health treatment as stigmatized and more willing to seek treatment for mental health issues.

Sherbourne and colleagues (2001) found that among women with unmet need for mental health care, cost is one of the most frequently reported barriers (ie, too expensive). Another frequently reported barrier was the feeling that one "can handle it myself". This was reported in 35% of women with an unmet need for mental health care. The authors concluded that beliefs and attitudes may be inhibiting some women from seeking needed care.

Among women, minorities and poor women are less likely than non-Hispanic, non-poor women to seek treatment for mental health issues (Miranda & Green, 1992). Reasons for differences may include feelings of stigma, different cultural explanations of the problem and the inability to obtain culturally competent services (Sussman, Robins & Earls, 1987). Unfortunately, these conclusions were determined from American studies and samples.

Perception of need for mental health treatment is an integral factor in treatment seeking. Sherbourne and colleagues (2001) that used data from the Commonwealth Fund 1998 Survey of Women's Health found that minority women are more likely to be distressed than white women, but white women were more likely to perceive a need for help. Furthermore, Sherbourne and colleagues found that unmet need is less in white women (35%) than specific ethnic groups. Women with a college education have less

unmet need than those with lower educational levels (27% vs. 44%), and women with social supports have less unmet need (39%) than women with social supports (57%).

Treatment seeking and income

The relationship between income and treatment seeking for mental health service is less clear than the relationship that is observed between income and mental health needs in Canada. Greater use of specialist services for medical care has been observed among higher income groups (McIssaac, Goel, Naylor, 1997). But there was no association found for income and mental health treatment in Ontario (Alegria, et al., 2000). It is difficult to interpret these kinds of findings in relation to what it may mean for unmet mental health needs. It is possible since low income groups have more mental health issues, that a lack of association between treatment and income in the literature may be a function of fewer individuals in low income groups receiving treatment.

2.4. BARRIERS TO HEALTH AND MENTAL HEALTH SERVICES

Reported Barriers to General Health Services

To date there has not been research that has used any of the Canadian population health surveys to examine the correlates of reported barriers to mental health services, but there are two studies that examined the correlates of reported barriers to general health services in Canada (Wilson & Rosenberg, 2004; Chen and Hou, 2002).

Wilson and Rosenberg (2004) reported on the accessibility of the Canadian health care system and the barriers to receiving health services in Canada by summarizing data in the 1998/1999 NPHS. The NPHS contains a series of questions designed to measure self-assessed access to health services and the barriers encountered in trying to access services for individuals that did not receive the services they felt that they were in need

of. Wilson and Rosenberg found that 5.9% of the Canadian population, aged 25 years or older reported not receiving care when needed in the previous year, including both general and mental health services. The authors found a relationship between household income level and not receiving health care. Individuals in the lowest income category had the highest percentage of individuals reporting care was not received when needed. Approximately 12% of individuals with a household income level of less than \$10,000 reported that care was not received as compared with 5.2% of individuals earning more than \$80,000 a year. The unemployed were also more likely to report access problems than the employed.

This study also reported on the reported barriers to services. Respondents that reported unmet perceived need for health services were asked to report the reasons why they did not receive health services. Respondents could provide more than one answer to 14 categories. The most frequently reported barrier was waiting time, which was reported by 23% followed by 16.4% reporting that health care was not available when required, followed by 13.3% reporting that they felt that care would be inadequate. The sixth most reported barrier was cost, which was reported by 11.2%.

Wilson and Rosenberg (2004) also examined whether economic or physical barriers to health care was cited more frequently in certain groups of people. They only included for analysis the top five most reported barriers which included: cost, being too busy, transportation, wait time and care not available when required. They performed cross-tabulations of the five barriers with socio-economic, demographic and health status measures. Waiting times was found to vary little among different groups with the exception of married people versus non-married. Almost 30% of married respondents

reported that waiting times were a barrier to receiving care compared to only 13% of divorced/separated or widowed respondents. The frequency in which waiting times and transportation were cited as barriers increased with age. There was little variation by gender. Individuals with higher levels of education were more likely to report being too busy and cost as a barrier than respondents with lower levels of education. Individuals who were employed were more likely to report being too busy as a barrier compared to individuals who were unemployed. Overall there was a positive relationship between increasing income level and the percentage of the population reporting that they were too busy to receive care and health care was not available when required. In contrast, there was a negative relationship observed between income level and reporting cost as a barrier. In summary, household income, education and employment status generally leads to the division of respondents into two groups, the lesser income, more poorly educated and unemployed emphasized economic access barriers, while the higher income, better educated and employed emphasized barriers which are tied to factors beyond economic and physical access. This analysis may have been more interesting if the authors had combined certain barriers instead of using the top five.

A similar study to Wilson and Rosenberg is that of Chen and Hou (2002). Their research used the 1998/1999 cross-sectional household component of the NPHS to predict unmet health care needs with socio-economic factors selected from the literature. They included for analysis all individuals aged 18 yrs and older. The authors found that 7% of the Canadian population reported not receiving care when needed in the previous year, which is 1% higher than that reported by Wilson and Rosenberg (2004). However,

Wilson and Rosenberg included for analysis individuals 25 years of age or older, while Chen and Hou included for analysis individuals aged 18 years or older.

Chen and Hou (2002) reported that the most commonly reported reason for an unmet health care need, cited by 23% of people who reported having had one, was that waiting time was too long. The second most frequent was that the service had not been available when it was required, which was reported by 15%. Between 13-14% of people with unmet needs reported that they had been too busy, that they did not get around to it, or that they felt the care would be inadequate. Cost was cited as a barrier by 11%.

Chen and Hou (2002) divided the 14 barriers into three groups: availability of services, accessibility of services and acceptability of services. When divided into these categories, service availability problems accounted for 39% of unmet needs, accessibility problems were cited by 13%, and acceptability problems were cited by 53%.

Acceptability problems included both circumstances and attitudes. Only 5% of respondents cited reasons that fell in more than one group. In the general Canadian population, 3% reported service availability difficulties, 1% reported accessibility problems and 4% reported service acceptability issues. The prevalence of unmet health care needs resulting from service availability did not vary significantly by household income, education, employment, Aboriginal status or immigrant status. Nor was there any significant relationship with age, marital status or urban/rural residence. Unmet health service needs due to service availability were strongly associated with health status. Individuals with poor or fair health or with chronic conditions were more likely to reported not receiving health services due to service availability. One possible explanation for this finding, as pointed out by the authors is that individuals with medical

problems are those most in need of health services and thus might be more likely to recognize deficiencies in the delivery of those services, particularly if their medical concerns remain unresolved. Less than 1% reported an unmet health care need due to problems related to accessibility which included cost or transportation. This was related to household income. Over 3% of individuals of low-income households reported unmet health care needs due to cost or transportation concerns, compared with less than half of one percent of people in upper-middle or high income households. The most highly reported reason in the NPHS for having an unmet health care need was what was termed “acceptability”. Acceptability referred to personal circumstances and attitudes such as being too busy, deciding not to bother, believing that care should be inadequate, not knowing where to go, or disliking or fearing doctors. Approximately 4% of Canadians that had an unmet health care need in the previous year attributed the reason to an acceptability factor. Unmet health care needs due to acceptability problems were more common among young people than older people, even after other factors were controlled for. Chen and Hou hypothesized that the higher odds among younger people of reporting acceptability issues may reflect their busier schedules and attitudes toward and knowledge about health care. Many of the factors associated with unmet needs due to service availability were also associated with unmet needs resulting from acceptability problems: self-reported health, chronic conditions, chronic pain and distress. Aboriginal people (off-reserve) were more likely than non-Aboriginal to have acceptability-related unmet needs, 8% versus 3%. Although individuals with low income had a higher prevalence of unmet health care needs due to acceptability problems, compared with people in upper-middle or high income household, this difference was not significant

when other factors were taken into account. This pattern was also observed for rural or urban residence and immigrant status.

With regards to gender, there was no difference between men and women with respect to accessibility issues (cost and transportation). However, women were more likely than men to have availability-related and acceptability-related unmet health care needs. The gender difference in availability-related unmet needs remained after demographic and socio-economic characteristics were controlled, with the exception of health status. When health status was taken into account, the gender difference was no longer statistically significant. The authors concluded that health status was a key factor linking gender with availability-related unmet needs, since women's health tended to be poorer than men's. The gender difference in acceptability-related unmet health care needs was still statistically significant when the demographic and socio-economic factors were controlled for. Overall, the authors concluded from the investigations that their analysis did not present evidence that there was income inequality in unmet needs due to the perceived availability of health care services. However, they did note that there was an observed income gradient in accessibility-related unmet health care needs.

Reported Barriers to Mental Health Services

Research that discusses unmet mental health needs or barriers to mental health services also focuses on individuals with mental disorder or mental illness. Therefore, less is known about the reported barriers to mental health services for individuals who seek services for mental health needs not necessarily related to mental illness per se. It is not the purpose of the current research to only understand the barriers to mental health services for individuals with mental illness, as this is a limited picture of the scope of the

problem of unmet needs for mental health issues. Instead it is the intent of the current research to address the issue of unmet mental health needs for all Canadians who self-identify as in need of mental health services.

Meadows, Fossey and colleagues (2000) examined perceived barriers to partially met and unmet need for mental health services in Australia. They found that the most reported barrier reported was lack of access followed closely by self-reliance and finance. Sareen, Cox, et al. (2005) found that the most common reasons for not seeking care (or reported barriers) when there was a perceived need for it, in the CCHS 1.2. including: preferring to manage problems by themselves, did not know where to get treatment and did not know how to get help.

In Anoun, Pennebaker and Wood's review (2004) of the factors that affect mental health needs they emphasized the importance of intervening variable in explaining the interactions between perceived need, diagnosis and service use. One of the intervening factors that were discussed is beliefs and attitudes towards mental health treatment. Jorm and colleagues (1997) found that in a study on belief systems concerning appropriate treatment for mental disorder, general practitioners and counselors were rated as highly helpful. Psychiatrists and psychologists were rated as less helpful. Antidepressants or antipsychotic medications, ECT and admission to a psychiatric ward of a hospital were more often rated as harmful. The educational difference in beliefs about the helpfulness of psychological treatment explained the greater use of psychiatrists and psychologists by the better educated in the sample studied. Social capital and perception of health were also discussed as intervening factors (Anoun, Pennebaker & Wood, 2004).

2.5. GENDER BASED ANALYSIS

Gender-based analysis or GBA, as discussed in a government policy planning document (Health Canada, 2000) is an analytic tool that uses gender as an organizing principle. It seeks to clarify the differences between women and men, the nature of their social relationships and their different social realities, life expectations and economic circumstances. It identifies how these conditions affect women's and men's health status and their access to and interaction with the health care system. As discussed by Williams (1999), gender based analysis is discussed in various provincial and federal government planning documents, but it has not been well used in policy or in research. Only recently has research, literature reviews, policy papers and presentations begun to apply the principles of gender based analysis to women's health and women's mental health (Grant, 2002; Colman, 2003;). Salmon and colleagues (2006) have recently released a report that discusses gender as it is related to mental health in Canada from a gender-based analysis perspective and a guideline that discusses including gender in health planning was recently developed by Donner (2003) as a guideline for health planners.

GBA is viewed as valuable to applications of health determinants theory because it explores the relationship between gender and the other determinants of health and how this relationship mediates health and the use of health services. In addition, GBA is valuable in evidence-based decision making because it increases the validity of research by ensuring that differences between men and women are incorporated into research (Health Canada, 2000).

The concept of GBA can be applied to research, policies, program design and evaluation to ensure that appropriate questions about both men and women yield sensitive and accurate analyses and programs. GBA allows researchers to consider the ways in

which gender interacts with the other determinants of health to influence the health of women and men, boys and girls (Health Canada, 2002).

GBA has been discussed as an important analytic tool and researchers are encouraged to apply the principles of GBA to research because men and woman can have different lives, including: income, education, family responsibilities, social supports and occupation health (Donner, 2003).

Incorporating GBA into Research

Donner (2003) has suggested ways that researchers and policy makers can incorporate gender based analysis in order to achieve more gender sensitive research results/conclusions or gender-sensitive programs. This can be done by incorporated GBA at all stages of the research including the literature review, development of research questions, development of research design and in the analysis of data. Donner (2003) has compiled a list of questions that should be asked to enhance GBA in the research design, including:

- Are the data separated by sex?
- Were the data collected in a way that allowed for the full participation of women and men, boys and girls?
- Have the data been analyzed considering gender both as a determinant of health and as an important influence on the other determinants of health?
- Have differences in age and life-stage been considered? Has diversity been considered in both genders?
- Does the data consider the situations of those women and men, boys and girls who carry a greater burden of illness or whose health may be more vulnerable

including youth, seniors, those living on low incomes, people with disabilities, Aboriginal people, immigrants and refugees and those with different sexual orientations? What can the data tell us about the influence of gender on the health of women and men in these groups?

- Are the data available only at the household/family level, when the experiences and needs of women and men, girls and boys in the family may be different?
- How can these data be used to help us to improve the health of the women and men, boys and girls in our region? How can these data be used to help us to address gender inequities in the health of our population?

In addition, Donner (2003) has discussed that GBA is incorporated into data analysis if:

- Sex disaggregated data are presented and analyzed
- Women, girls, men and boys are fully represented in the data by sex and age as appropriate
- Data are available for individuals not just for families
- The effect of gender as a determinant of health has been considered
- The influence of gender on other determinants has been considered
- Data about diversity among women/girls and men/boys are presented and analyzed
- Data about women/girls and men/boys who carry a greater burden of illness or whose health may be more vulnerable are presented and analyzed.

CHAPTER 3: METHODS

3.1. STUDY DESIGN AND DATA SOURCE

This study was a secondary analysis of the cross-sectional population data from the Canadian Community Health Survey Mental Health and Well-being Cycle 1.2 (CCHS

1.2). The Canadian Community Health Survey (CCHS) is a cross-sectional population health survey that collects information on health status, health care utilization and health determinants for the Canadian population. The CCHS operates on a two-year collection cycle. The first year of the cycle is denoted by “.1”, which a large sample, general population health survey designed to provide reliable estimates at the health regional level. The second year of the survey cycle is “.2” is a smaller survey designed to provide provincial level estimates on specific focused health topics.

This study utilized data from The Canadian Community Health Survey Mental Health and Well-Being Cycle 1.2 (CCHS 1.2) to address the research objectives. This research utilized the public use data files for descriptive and bivariate analysis and used the master data file for multivariate analysis. The PUMF files are appropriate for descriptive analysis and for providing estimates when the proper survey weights and guidelines for release of information is followed. Proportions and estimates calculated with the PUFM files will not differ from estimates or proportions that would be produced with the master file. All analysis required for this study could not be conducted with the PUMF files because it does not contain information on ethnicity or area of residence and because the application of bootstrapping methods is not feasible in the the PUMF files. Variables on ethnicity and area of residence along with bootstrapping were desired for regression analysis. The PUMF files are very similar to that of the master file data. However some key differences include the exclusion of certain variables in the PUMF files and certain variables are grouped in the PUMF files that would not be grouped in the master file.

This cross-sectional survey used a multistage stratified cluster sampling design. It was designed to provide reliable estimates at the provincial level on mental health determinants, mental health status and mental health system utilization across Canada for health planning and policy development purposes. Information was collected by the survey between May 2002 and December 2002.

The primary objectives of the CCHS 1.2. are to:

- Provide timely, reliable, cross-sectional estimates of mental health determinants, mental health status and mental health system utilization across Canada;
- Determine prevalence rates of selected mental disorders to assess the impact of burden of illness;
- Contrast access and utilization of mental health services with respect to perceived needs, and
- Assess the disabilities associated with mental health problems to individuals and society.

3.2. CCHS TARGET POPULATION

CCHS 1.2. targets individuals aged 15 years and older, living in private occupied dwellings in the ten Canadian provinces. The survey excludes from its target population those living in the three Canadian territories, individuals living on Indian Reserves and Crown Lands, health care institution residents, clientele of institutions, full-time members of the Canadian Armed Forces and residents of certain remote regions. The CCHS 1.2. covers approximately 98% of the population aged 15 or older in the ten provinces (Statistics Canada September 3, 2003). Therefore, the term 'Canadians' or 'Canadian households' will be used when discussing the data and discussing estimates.

Sample size and allocation

A sample size of 30,000 respondents was desired to provide reliable estimates at the provincial level. Reliable estimates were required both at national and provincial levels. Because provinces vary greatly in population size, the sample desired was allocated among provinces proportionally to the square root of the estimated population in each province. In addition, to ensure urban and rural representation in each province, the sample was allocated to two strata: urban and rural. The provincial sample was proportionally allocated to the urban and rural strata to the number of dwelling in each stratum. Then, sample sizes were enlarged before data collection to take into account out-of-scope and vacant dwellings and anticipated non-response.

Sampling

The CCHS 1.2. used the area frame designed for the Canadian Labour Force Survey (LFS) as its sampling frame (Statistics Canada, 1998). The sampling plan of the LFS is a multistage stratified cluster design in which the dwelling is the final sample unit. In the first stage, homogeneous strata were formed and independent samples of clusters were drawn from each stratum. In the second stage, dwelling lists were prepared for each cluster and dwellings, or households, were selected from the lists. Selection of individual respondents was designed to ensure adequate representation of young persons (15 to 24) and seniors (65 or older).

In total, 48,047 households were selected to participate in Cycle 1.2. Out of those selected households, 86.5% or 41,560 households responded. Among these responding households 41, 559 individuals (one per household) were selected to participate in Cycle 1.2. Of those, 36,984 individuals responded, resulting in an overall person-level response

rate of 89.0%. At the national level, this would yield a combined response rate of 77% for Cycle 1.2. Thus, the total sample size for the CCHS Cycle 1.2. was 36, 984.

Interviewing:

Gravel and Beland (2005) discuss that every effort was made to conduct face-to-face interviews. Data collection by telephone was authorized only when travel was not possible due to the respondent prohibiting or refusing to conduct the interview in person. Household contact and respondent selection by telephone were also allowed after an initial in-person contact was attempted unsuccessfully. In total, 14% of the interviews were completed by telephone. No proxy interviews were permitted for this survey. The average length for all interviews was a little less than 70 minutes.

3.3. STUDY SAMPLE

This research is based on two study samples. The first sample is referred to as the 'Canadian household sample; which includes all CCHS 1.2. study participants. The total sample size is 36,984 respondents representing 24,996,593 Canadians. There are 16,773 male respondents (representing 12,286,111 Canadian boys and men) and 20,211 female respondents (representing 12,710,482 Canadian girls and women).

The second study sample is referred to as the sub-sample of interest or those with reported unmet perceived need for mental health services. This sub-sample includes all respondents that reported that in the past year they were in need of help for problems with emotions, drugs or alcohol but did not receive it. The total size of this sub-sample is 1798 respondents representing 1,130,526 Canadians. The sub-sample consists of 630 boys and men (representing 440,600 Canadians) and 1168 girls or women (representing 689,925 Canadians.)

3.4. DEPENDENT VARIABLES

In this study there are two general categories of dependent measures. The first category pertains to unmet perceived need for mental health services and the second category contains measures of reported barriers to mental health services.

Unmet Needs for Mental Health Services

Unmet perceived need for mental health services:

This is a dichotomous measure with respondents categorized as having:

- Unmet perceived need for mental health services in past year
- No reported unmet perceived need for mental health services in past year

This measure was derived from responses to question *ser_q103* in the survey also referred to as variable *serb_a3*. The question asked respondents: “during the past 12 months, was there ever a time when you felt that you needed help for emotions, mental health or use of alcohol or drugs but didn’t receive it.”

Respondents that indicated “yes” were categorized as having reported unmet mental health services in the past year, and those that reported “no” were classified as having “no reported unmet mental health service needs in the past year”. There were 150 respondents that were coded as N/A, didn’t know, refused or not stated. These responses were coded as missing and were not included in any analysis requiring this variable.

Type of unmet mental health service needs:

This is a categorical measure that describes the type of mental health service that respondents did not receive, including:

- Information about mental illness and its treatments

- Information on availability of services
- Medication
- Therapy or counseling
- Help with – financial problems
- Help with – housing problems
- Help with – personal relationships
- Help with – employment status or work situation
- Other

This measure was derived from responses to question *ser_q104* in the survey. The question asked respondents “what kind of help did you need that you did not receive?” All that applied were marked off. These unmet needs were grouped into unmet perceived needs for: information, treatment, daily living or other based on face validity. These variables were grouped in this way for descriptive purposes. They are classified and described below.

Unmet information needs

Respondents were classified as having unmet information needs if they have the presence of at least one unmet information need and no report unmet treatment, daily living or ‘other’ needs. Unmet need for information includes respondents who indicated that in the past year their unmet mental health service need included:

- Information about mental illness and its treatments, or
- Information on availability of services

Unmet treatment needs

Respondents were classified as having unmet treatment needs if they have the presence of at least one unmet treatment need and no reported information, daily living or 'other' needs. Unmet need for treatment includes respondents who indicated that in the past year their unmet mental health service need included:

- Medication, or
- Therapy or counseling, or
- Help with personal relationships

Unmet daily living needs

Respondents were classified as having unmet daily living needs if they have the presence of at least one unmet daily living need and no reported information, treatment or 'other' needs. Unmet need for treatment includes respondents who indicated that in the past year their unmet mental health service need included:

- Help with - financial problems, or
- Help with - housing problems, or
- Help with - employment status or work situation.

'Other' need:

Respondents were classified as having an unmet 'other' mental health service need if they indicated that in the past year they had an unmet 'other' need and did not have the presence of unmet daily living, treatment or information needs.

Barriers to Mental Health Services

Barriers to mental health services was taken from question ser_q104 in the survey. This questions asks respondents to indicate "why didn't you get this help?" All responses that applied were marked by the interview. This question was only asked to

respondents that had indicated in the previous questions that 'in the past year there was a time when they felt that they needed help for emotions, mental health or use of alcohol or drugs but didn't receive it'. Possible explanations/barriers to receiving services include:

- 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
- Couldn't afford to pay
- Problems with things like transportation, childcare or scheduling
- 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
- Didn't get around to it/didn't bother
- Language problems
- Personal or family responsibilities
- Other

These responses are grouped into three categories of barriers, including: accessibility, acceptability and availability issues. These three categories were derived by Statistics Canada (see Canadian Community Health Survey CCHS 1.2 derived variables specifications). These grouped barriers are described in more detail below

Accessibility Barriers

This variable measures whether a respondent reported a perceived unmet mental health care need due to accessibility issues , including:

- Couldn't afford to pay
- Problems with things like transportation, childcare or scheduling

Acceptability Barriers

This variable measures whether a respondent reported a perceived unmet mental health care need due to acceptability issues, including:

- Preferred to manage yourself
- Didn't think anything more could help
- Didn't know how or where to get
- 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 Barriers

This variable measures whether a respondent reported a perceived unmet mental health care need due to availability issues, including:

- Professional help not available – in the area
- Professional help not available – at time required (e.g., doctor on holidays, inconvenient hours)
- Waiting time too long

3.5. INDEPENDENT VARIABLES

There were different categories of independent variables chosen to include in this study for different purposes. The two main predictive measures include gender and income adequacy. Other independent variables were selected for their association with the outcome measure in the literature. These variables include socio-demographic, health-related and psych-social measures. All of these categories of independent variables were used for descriptive and bivariate analysis. These variables were also included in regression analysis.

Socio-Demographic Variables

Age:

Age was categorized into the following groupings:

- 15-24 years of age
- 25-44 years of age
- 45-64 years of age
- 65 or older

Gender

All respondents were classified as either male or female based on the self-identified responses. Other responses were not allowed (ie. transsexual, don't know or 'refused').

Marital Status:

Survey respondents were classified into one of the following categories based on their current marital status.

- 1) Married or common-law
- 2) Widowed, separated, divorced
- 3) Single, never married

Education:

This variable describes the highest level of education acquired by the respondent, which is divided into four levels:

- 1) Less than secondary school graduation (some high school)
- 2) Secondary school graduation, no post-secondary education (high school grad)
- 3) Some post-secondary education or post-secondary degree/diploma

Work pattern in the past 12 months:

This variable describes the respondent's job status over the past year. Respondents that indicated 'other', N/A or N/S were coded as missing. 'Not applicable' includes those under 15 years of age or older than 75 years of age. This variable is categorized into:

- Has had a job through past year
- Was without job or had a job part of the year– looking or not looking

Rural/Urban

Respondents are classified into urban or rural areas based on the enumeration area in which the respondent resides. Urban areas is defined as continuously built-up areas having a population concentration of 1,000 or more and a population density of 400 or more per square kilometer based on the previous census. To be considered continuous, the built-up area must not have a discontinuity exceeding two kilometers (Statistics Canada, CCHS 1.2. master file derived variable documentation).

Ethnicity / Culture

There are two variables that relate to ethnicity and culture including: immigrant status and Aboriginal status.

Immigrant Status:

Respondents are classified as either being an immigrant, a recent immigrant (immigrated in the last 10 years) or Canadian.

Aboriginal Status

Aboriginal status is a dichotomous variable. Respondents are classified as either having Aboriginal ancestors (eg. North American Indian, Metis, Inuit) or not having Aboriginal ancestors.

Income adequacy

Income adequacy classifies the total household income into quintiles based on total household income and number of people living in the household. Household income is based on the best estimate that respondents could provide regarding the total household income (wages/salary, Child Tax Benefit, alimony, benefits, etc) before taxes/deductions, of all household members from all sources in the past 12 months.

Income adequacy is divided into 5 categories including:

a) Lowest Income:

<\$10,000 if 1 to 4 people;

<\$15,000 if 5 + people

b) Lowest Middle Income:

\$10,000 to \$14,999 if 1 or 2 people;

\$10,000 to \$19,999 if 3 or 4 people;

\$15,000 to \$29,999 if 5+ people

c) Middle Income:

\$15,000 to \$29,999 if 1 or 2;

\$20,000 to \$39,999 if 3 or 4;

\$30,000 to \$59,999 if 5+

d) Upper Middle Income:

\$30,000 to \$59,999 if 1 or 2 people;

\$40,000 to \$79,999 if 3 or 4 people;

\$60,000 to \$79,999 if 5+ people

e) Highest Income:

> \$60,000 if 1 or 2 people;

> \$80,000 if 3+ people

Health Related Factors

Self-rated health

This variable (formerly the Health Description Index) describes the respondent's overall health status based on his or her own judgment. Higher scores indicate positive self-reported health status. Respondents were asked to indicate whether their health in general is: excellent, very good, good, fair or poor. Respondents' self-rated health is categorized into:

- Fair or poor
- Good
- Excellent or very good

Self-rated physical health

This variable describes the respondent's self-rated physical health. Higher scores indicate better health. Respondents were asked in general, would you way your physical health is: excellent, very good, good, fair or poor? Respondents' self-rated physical health is categorized into:

- Fair or poor
- Good
- Excellent or very good

Self-rated mental health

This variable describes the respondent's self-rated mental health. Higher scores indicate better self-rated mental health. Respondents were asked in general, would you

way your mental health is: excellent, very good, good, fair or poor? Respondents' self-rated mental health is categorized into:

- Fair or poor
- Good
- Excellent or very good

Self-reported stress

This variable describes the respondent's self-rated stress. Higher scores indicate higher levels of stress. Respondents were asked to think about the amount of stress in their life and indicate whether most days are: not at all stressful, not very stressful, a bit stressful, quite a bit stressful or extremely stressful. In this study, response categories were further collapsed into the following three categories:

- not at all/not very stressful
- a bit stressful
- quite a bit/extremely stressful

Social Support

The CCHS uses questions from the Medical Outcome Study (MOS) Social Support Survey. The survey has four measures of social support (Sherbourne & Stewart, 1991). The four dimensions include:

- Emotional or Informational Support: Emotional support involves the expression of positive affect, empathic understanding and the encouragement of expressions of feelings. Informational support involves the offering of advice, information, guidance or feedback.
- Tangible support: involves the provision of material aid or behavioral assistance

- Positive social interaction: the availability of other persons to do fun things with you
- Affection: involving expressions of love and affection

Chronic health condition – general:

Respondents were categorized into having a chronic health condition present or not having a chronic health condition present. Respondents were further classified into having 0-1 conditions, 2-3 conditions, and 4 or more chronic conditions.

Chronic conditions included health conditions which were diagnosed by a health professional (includes mental health conditions). Respondents were asked to indicate whether they have any long-term conditions which are expected to last or have already lasted 6 months or more and have been diagnosed by a health professional. Conditions include: food allergies, asthma, fibromyalgia, arthritis/rheumatism, back problems, migraine headaches, chronic bronchitis, chronic obstructive pulmonary disease, diabetes, epilepsy, heart disease, cancer, stomach ulcers, stroke, bowel disorder, Alzheimer's disease or other dementia, cataracts, glaucoma, thyroid, chronic fatigue, multiple chemical sensitivities, schizophrenia, other psychosis, obsessive compulsive disorder, dysthymia, post-traumatic stress disorder, autism, learning disability, eating disorder or any other long-term or mental health condition that has been diagnosed by a health professional.

Psych-social measures

Psychological well-being scale

Masse's Psychological Well-being Manifestation Scale (WBMMS) was used to measure psychological well-being of respondents in the past month. This scale is based

on the proposed questions from Raymond Masse. Higher scores indicate greater well-being. This scale includes measures of self-esteem, balance, social involvement, sociability, self-control and happiness. This continuous variable is a sum of 25 questions. This summed scale ranges from 0-100.

Distress

The K10 or Kessler's scale was used to measure level of distress in respondents in the past month. This scale measures the frequency of feeling: sad, nervous, restless, hopeless, worthless and everything an effort with ten questions. Higher scores on this scale indicate higher levels of distress. Previous surveys administered by Statistics Canada, specifically NPHS Cycle 4 and CCHS 1.1. used a smaller version of this scale. The previous surveys used the Kessler 6, which was a 6 item scale instead of the fuller version of 10 items that CCHS 1.2. uses to measure distress.

Mental illness

This variable identifies whether respondents met the CCHS 1.2/WMH-CIDI criteria for any of the measured disorders or substance dependencies in the past 12 months. Mental disorders and substance dependency was assessed using the World Mental Health - Composite International Diagnostic Interview (WMH-CIDI). The WMH-CIDI is a lay-administered psychiatric interview designed to produce classifications based on Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (DSM-IV) criteria (American Psychiatric Association, 1994). The WMH-CIDI questions and algorithms were operationalised to meet the needs of CCHS 1.2. The interview can not be used to measure all aspects associated with the DSM-IV definitions and classification. The WMH-CIDI provides information with regards to whether

respondents have had one or more of the following in the past year: major depressive episode, manic episode, panic disorder, social phobia, agoraphobia, major depression, suicidal thoughts/attempts, alcohol use, alcohol dependence, illicit drug use in lifetime, substance dependence, pathological gambling and eating troubles.

Mental Health Resources Used – past year

This variable identifies whether the respondent used resources for problems concerning emotions, mental health or use of alcohol or drugs in the 12 months prior to the interview. Specifically, it assesses whether the respondent was ever hospitalized overnight or ever consulted a professional, used internet support group or chat room, went to a self-help group or used a telephone helpline in the 12 months prior to the interview.

3.6. METHODOLOGICAL CONSIDERATIONS

Due to the complexity of the sample design used, there is no simple formula that can be used to calculate variance estimates. An approximate method is required to calculate variance estimates. In order to determine the quality of the estimate the standard deviation must be calculated. The standard deviation is also required to calculate the coefficient variation and the confidence intervals. The approximate methods that are employed in this study include scaling or standardizing the weights and bootstrapping.

Sampling Errors

It has been recommended by Statistics Canada (CCHS 1.2. Master file documentation) that users of Cycle 1.2 data files use coefficient variation (CV) of an estimate when analyzing data produced by CCHS 1.2. This has been recommended

because estimates from a sample survey are subject to sampling error, and it is standard practice to report sampling error which is expressed as the standard deviation of the estimates derived from survey results. However, because of the large variety of estimates that can be produced from a survey, the standard deviation of an estimate is usually expressed relative to the estimate to which it pertains. This method is termed the coefficient of variation (CV) of an estimate. This method will be used for all procedures where estimates are calculated.

For calculating estimates based on a sub-sample of the population, the CV of the estimate will be determined by finding the intersection between the percentage or the proportion that is based upon the subset of the total population across the top of the CV and that of the numerator of the proportion.

The CV of an estimate is obtained by dividing the standard deviation of the estimate by the estimate itself and is expressed as a percentage of the estimate. The example provided (CCHS 1.2. Master file documentation) is if we hypothetically suppose that one estimates that 12% of Canadians aged 15 and over have had at least one major depressive episode in their lives and that estimate is found to have a standard deviation of .007, then the CV of this estimate is calculated as:

$$(0.007/0.12) \times 100\% = 5.83\%.$$

Survey Weight

The sampling design of the CCHS was used to permit for reliable estimates at the provincial and national levels without surveying the entire Canadian population. The principle behind estimation in a probability sample is that each person sampled represents several other people not in the sample. As such, a survey weight is assigned to each

respondent in the sample. This weight corresponds to the number of persons represented by the respondent for the entire population. The survey weight will be applied when estimates are computed.

Standardized Weight

Due to the complex sampling method of the CCHS, the survey weight does not contain all the required information necessary to construct point estimates or to produce estimate variances, which are needed for inference. A popular method to partially account for the complex survey design is to standardize the weight. This is computed by scaling the weight to sum to the total sample size. Roberts, Kovacevic et al. (1999) has discussed that scaled (also called standardized) weights can be used for preparing descriptive estimates, computing the Pearson X^2 or the likelihood ratio, fitting models and testing a variety of hypotheses regarding population or model parameters. This method takes into account the inequality in the selection probabilities, but does not take into account other design aspects that influence variances, such as stratification and clustering. It should be noted, that scaling will not provide correct estimates of totals.

A standardized weight will be computed and applied for all exploratory and analytic procedures. The only procedures that will not use the standardized weight will include the final regression model (which will utilize bootstrapping) and any procedure requiring population estimates.

The standardized weight will be computed by taking the survey weight and standardizing it to have an average value of 1 in the sub-sample of the domain being studied. In other words, the standardized weight will be computed by taking the sample weight and dividing it by the mean of the sample weight.

Bootstrapping

Bootstrapping is a re-sampling method that involves the selection of simple random samples and the calculation of the variation in the estimates from replicate to replicate. Bootstrapping takes the sample design information into account when calculating variance estimates.

It has been recommended by Statistics Canada (CCHS 1.2. Master file documentation) that users of Cycle 1.2 data files use Bootstrapping to calculate variance estimates. Statistics Canada has developed a Bootvar program that can perform the Bootstrap calculations. Bootstrapping with the Bootvar program was used for the final regression analysis.

3.7. GENDER BASED ANALYSIS AS A CONCEPTUAL TOOL

This research sought to apply some of the principles of gender based analysis to enhance the gender sensitivity of the results and conclusions. The principles and methods that were chosen to enhance gender sensitivity were based on the framework presented by Donner (2003). We incorporated the following GBA principles and methods in this research:

- data separated by gender in analysis and presented
- gender considered a determinant of health, specifically as a determinant of unmet perceived need for mental health services
- the influence of gender on other determinants had been considered with respect to the influence of gender on income adequacy

3.8. ANALYTIC METHODS

This research involved a variety of data analysis procedures including: estimation, bivariate analysis and multiple logistic regressions.

Estimation:

Estimates were calculated by applying the survey weight and computing frequencies of the variables of interest. Estimates are provided to determine the number and proportion of girls and women compared to boys and men with unmet perceived need for mental health services and type of unmet perceived need for mental health services. Estimates are produced separately for girls and women and for boys and men, and were disaggregated by income adequacy. Estimates are provided for Canadian households.

The type and category of unmet perceived need as well as the type and category of barriers to help for mental health services are expressed as a *proportion* within the sub-sample that perceived an unmet mental health service need.

Estimates were produced with the public use data files and therefore contain the coefficient of variation (CV) of the estimate, which is a measure of sampling error. The survey documentation recommends that a CV of less than 16.5 is acceptable and can be reported. Estimates that have a CV between 16.6 and 33.3 are reported but are flagged as a 'marginal' estimate as there is a high sampling variability associated with the estimate. The survey weights were applied for estimation. Release guidelines for reporting estimates were followed (Public Use Microdata File documentation, pg. 59). The number of sampled respondents that contribute to the calculation of the estimate were determined. If this number was found to be less than 30, the weighted estimate was not reported. The confidence intervals around the estimate are not reported here, as the CV provides a

measure of variance that was determined to be suitable for estimates. The CV of the estimate is also provided for proportions when discussing the sub-sample of interest.

Bivariate Analysis:

All bivariate analysis was calculated using the standardized weight. Bivariate analysis was done to:

- a. Compare the characteristics of those with reported unmet perceived need for mental health services with those who did not report unmet perceived need for mental health services on selected socio-demographic, cultural, health related, psych-social and health need/use measures.
- b. Examine the relationship between income adequacy and gender, and unmet perceived need for mental health services.
- c. Examine the relationship between income adequacy and gender, and reported barriers for unmet perceived need for mental health services.

Comparisons were made between those who reported unmet perceived need for mental health services and those who did not, on independent measures of interest (income and gender) and other descriptive variables including socio-demographic variables (age, marital status, education, immigrant status, language spoken, Aboriginal status, labor force participation), general health status variables (self-rated health, self-rated physical health, self-rated mental health, self-reported stress and chronic health conditions), presence of a DSM disorder in the previous year, and mental health service use in the past year. Comparisons on continuous measures were computed with t-tests, and comparisons on nominal or ordinal data were assessed with chi-square tests. The

results of these tests along with the means and standard deviation of continuous variables are reported.

Multivariate Analysis:

Odds Ratios

To examine the relationship between income adequacy and gender and unmet perceived need for mental health services, odds ratios were computed for each level of income adequacy to determine the odds of reporting unmet perceived need for mental health services by income adequacy adjusting for age and mental illness in the past year. In addition, the relationship between income adequacy and gender were evaluated by computing the odds of reporting unmet perceived need for mental health services by gender, controlling for income adequacy, age and mental illness in the past year.

To examine how reported barriers to meeting perceived needs vary by income adequacy and gender, additional odds ratios were calculated. The sub-sample (those that reported unmet perceived need for mental health services) were included for analysis. Odds ratios were computed to determine the odds of reporting each type of barrier (availability, accessibility and acceptability) to mental health services, controlling for income and age, disaggregated by gender.

Logistic Regression

To determine the unique contributions that both income adequacy and gender have on unmet perceived need for health services, a multivariate regression analysis was computed that adjusted for other factors that are known to be correlated with the outcome measure.

There were two main steps to determine which factors to be adjusted for. The first step was to determine from the literature which factors were *theoretically* related to mental health need, mental health service seeking, unmet needs and unmet perceived mental health services needs. Based on the literature, the identified variables included: socio-demographic variables (age, education, employment, ethnicity, immigrant status), psych-social factors (marital status, social support), use of mental health services in the past year, meeting criteria for a measured DSM diagnosis in the past year and measures of self-rated health.

The second step involved statistical testing to select a limited number of factors that are statistically associated with the outcome of interest for inclusion in the final predictive model. The variables that were found to perform were retained for inclusion in the final regression model. These procedures are described in more detail in the results sections. The final model (the logistic regression) used the bootstrap procedure to estimate standard errors and confidence intervals.

3.9. ETHICAL CONSIDERATIONS

This research received ethics approval by the Health Research Ethics Board (HREB) at the University of Manitoba.

Anonymity

Anonymity of study participants was assured. The data does not contain names or addresses of study participants. Anonymity of study participants was further assured through following the guidelines and procedures required of Statistics Canada in order to gain access to the data. These procedures ensure that there is no possibility of linking the

data and output that is disseminated through research reports with personal identifying information.

Access to confidential protected data

Access to the data was granted by Statistics Canada and SSHRC through the Manitoba Research Data Centre (RDC). The RDC has strict security measures in place to protect data including utilizing a secure closed local area network, and security clearance for researchers working in the RDC. This research follows the security procedures and guidelines established by Statistics Canada to ensure confidentiality of survey participants. Access to data is conditional on security clearance by Statistics Canada and legally binding contracts between the researcher and Statistics Canada that ensure that all research conducted at the RDC adheres to guidelines and procedures put forward by Statistics Canada.

This research was subject to a Confidential Information Agreement signed by all researchers involved in the project and Statistics Canada analysts. This agreement outlined terms related to the use and dissemination of information derived from the Statistics Canada master files. These terms include:

- Data and output generated in the RDC is required to stay at the RDC
- Data and output generated does not leave the RDC unless approved by the RDC analyst (a Statistics Canada employee)
- The RDC analyst will only approve data/output to leave the RDC to be disseminated if it is determined that there is no possibility of linking the output/data to personal identifying information

- Data will not be approved for dissemination if there are fewer than 5 observations per cell
- Data with personal identifying information will be shredded on the RDC site

Other anticipated ethical considerations

Where appropriate, this research did attempt used unbiased language at an appropriate level of specificity.

CHAPTER 4: RESULTS

Results are classified into population estimates and proportions, bivariate analysis and multivariate analysis.

4.1. UNMET PERCEIVED NEED FOR MENTAL HEALTH SERVICES: ESTIMATES

Population estimates were produced to estimate the number and proportion of Canadian households with unmet perceived need for mental health services, by age, income adequacy and gender. Estimates and proportions were also produced for type and category of unmet mental health service by gender.

Unmet perceived need for mental health services

In total, 4.5% of Canadian households, approximately 1, 130, 526 individuals over the aged of 15 years of age reported unmet perceived need for mental health services in the past year. It was estimated that 5.5% of Canadian females, an estimated 689, 925 girls and women, and 3.6% of Canadian males, an estimated 440, 600 boys and men, reported unmet perceived need for mental health services in the past year. The population estimates for perceived unmet mental health service needs are presented in

Table 1, disaggregated by gender and age, and in Table 2 disaggregated by income adequacy and gender.

Table 1: Population estimates of unmet perceived need for mental health services by age and gender

Age	Boys, Men			Girls, Women			Total		
	Est. #	Prev (%)	95% CI	Est. #	Prev (%)	95% CI	Est. #	Prev (%)	95% CI
15-24	111,907	5.3	4.06, 6.54	206,750	10.2	8.55, 11.85	318,657	7.7	6.68, 8.72
25-44	222,444	4.7	4.47, 4.94	317,551	6.7	5.72, 7.68	539,995	5.7	5.07, 6.33
45-64	91,728	2.4	1.73, 3.07	138,881	3.6	2.75, 4.45	230,609	3.0	2.45, 3.55
65 +	*14,521	0.9	0.39, 1.41	*26,744	1.3	0.75, 1.85	*41,265	1.1	0.73, 1.47
Total	440,600	3.6	3.25, 3.95	689,926	5.5	5.02, 5.98	1,130,526	4.5	4.25, 4.75

* Indicates a marginal estimate, CV is between 16.6 and 33.3

Note: Due to rounding estimates may not add to totals.

As can be seen in Table 1, there is a larger percentage of respondents reporting unmet perceived need for mental health services in younger age groups. For respondents aged 15-24 years of age, 7.7% had unmet perceived need for mental health services in the year prior to the survey. This proportion decreases as age increases. This trend is particularly pronounced in females. There is also a larger percentage of respondents reporting unmet perceived need for mental health services in lower income adequacy groups. As can be seen in Table 2, 9.6% of those in the lowest income adequacy quintile reported unmet perceived need for mental health services. This percentage decreases with increasing income adequacy. This trend is particularly pronounced in girls and women. All estimates have a low level of error, with the exception for those in the highest age category. The coefficient of variation associated with the estimates for both

genders in the highest age category has a marginal degree of error mostly due to smaller sample sizes that contribute to this age group.

Table 2: Population estimates of unmet perceived need for mental health services by gender and Income adequacy

Income Adequacy	Boys, Men			Girls, Women			Total		
	Est. #	Prev (%)	95% CI	Est. #	Prev (%)	95% CI	Est. #	Prev (%)	95% CI
Lowest	*23,951	7.4	3.64, 11.16	*43,873	11.3	7.07, 15.53	67,823	9.6	6.70, 12.50
Lower Middle	*28,096	4.8	2.43, 7.17	65,075	6.5	4.54, 8.46	93,170	5.9	4.39, 7.41
Middle	89,854	4.2	3.07, 5.33	130,803	5.0	3.91, 6.09	220,658	4.7	3.88, 5.52
Upper Middle	136,444	3.3	2.57, 4.03	192,830	4.8	3.83, 5.77	329,274	4.1	3.52, 4.68
Highest	135,365	3.3	2.57, 4.03	176,181	5.2	4.17, 6.23	311,547	4.2	3.60, 4.80
Total	440,600	3.6	3.12, 4.05	689,926	5.5	4.91, 6.09	1,130,526	4.5	4.16, 4.84

Note: * Indicates a marginal estimate.
Due to rounding estimates may not add to totals.

To get a fuller picture of the distribution of gender, age and income adequacy we also computed the breakdown of each variable in those with unmet perceived need for mental health services. It was found that in sub-sample that perceived an unmet health service need in the past year ($N = 1,130,526$), 61% are girls or women and 39% are boys or men. The distribution of age and income adequacy in the group with unmet perceived need for mental health services is presented in Table 3.

Table 3: Distribution of age, and income adequacy in group with perceived need by gender

Variables	Sub-Sample with Reported PN for Mental Health Services (N= 1, 130, 526)		
	Boys, Men	Girls, Women	Total
Age	%	%	%
15-24	25.4	30.0	28.2
25-44	50.5	46.0	47.8
45-64	20.8	20.1	20.4
>65	3.3	3.9	3.7
Income Adequacy			
Lower	5.8	7.2	6.6
Lower Middle	6.8	10.7	8.2
Middle	21.7	21.5	19.5
Upper Middle	33.0	31.7	29.1
Highest	32.7	28.9	27.6

Type of unmet perceived need for mental health services

The most reported unmet perceived need for mental health services were for therapy or counseling, help with personal relationships, and information about mental illness and its treatments. The population estimates for each reported unmet perceived need for mental health services is reported in Table 4. As can be seen in Table 4, the majority of individuals with unmet mental health service needs fall into the category of unmet needs for information or treatment.

Table 4: Estimating Unmet Mental Health Service Needs in Canada

Reported Unmet Mental Health Service Need	Canadian Population Estimated			Proportion in the sub-sample
	Est. #	Prev (%)	95% CI	%
Information				
Information about mental illness and its treatments	227,303	0.9	0.7, 1.1	20.2
Information on availability of services	139,719	0.6	0.5, 0.7	12.4
Treatment				

Therapy or counseling	556,593	2.2	2.4, 3.0	49.5
Help with – personal relationships	243,341	1.0	0.8, 1.2	21.6
Medication	86,779	0.3	0.2, 0.4	7.7
Daily Living				
Help with – financial problems	98,366	0.4	0.3, 0.5	8.7
Help with – housing problems	46,867*	0.2	0.1, 0.3	4.2
Help with – employment status or work situation	71,495	0.3	0.2, 0.4	6.4
Other	108,3397	0.4	0.3, 0.5	9.6
Total	1,130,526	4.5	4.2, 4.8	

The type of unmet needs for each gender is presented in Table 5. There are some noted differences. For girls and women, the three most reported unmet perceived need for services were:

- Therapy or counseling was reported by 2.6% of girls and women.
- Help with personal relations was reported by 1.2% of girls and women.
- Information about mental illness and its treatments was reported by 1.1% of girls and women.

For boys and men, the most three most reported unmet perceived need for services were:

- Therapy or counseling was reported by 1.8% of boys and men.
- Information about mental illness and its treatments was reported by 0.8% of boys and men.
- Help with personal relationships was reported by 0.7% of boys and men.

Though the order of the three most frequently reported unmet needs did differ slightly by gender, the difference was not statistically significantly ($p > .05$). However, chi-square tests did reveal significant differences between men and women with regards

to unmet needs for financial problems, help with housing and help with employment status or work situation ($p < .05$).

Table 5: Estimating Unmet Mental Health Service Needs by Gender

Mental Health Service	Boys, Men				Girls, Women			
	Canadian Population Estimates		% in Sub Sample		Canadian Population Estimates		% in Sub-Sample	
	Est. #	%	95% CI	%	Est. #	%	95% CI	%
Information								
Information about mental illness and its treatments	92,823	0.8	0.6, 1.0	21.1	134,481	1.1	.01, 1.3	19.6
Information on availability of services	47,389*	0.4	0.3, 0.5	10.8	92,330	0.7	0.5, 0.9	13.5
Treatment								
Therapy or counseling	225,673	1.8	1.5, 2.1	51.3	330,920	2.6	2.2, 3.0	48.2
Help with – personal relationships	90,829	0.7	0.5, 0.9	20.7	152,511	1.2	1.0, 1.4	22.2
Medication	30,162*	0.2	0.1, 0.3	6.9	56,617*	0.4	0.3, 0.5	8.3
Daily Living								
^a Help with – financial problems	47,344*	0.4	0.3, 0.5	10.8	51,022*	0.4	0.3, 0.5	7.4
Help with – housing problems	17,871*	0.1	.04, .01	4.1	28,996*	0.2	0.1, 0.3	4.2
^a Help with – employment status or work situation	37,752*	0.3	0.2, 0.4	8.6	33,742*	0.3	0.2, 0.4	4.9
^a Other	34,529*	0.3	0.2, 0.4	7.9	73,868	0.6	0.4, 0.8	10.8
Total	440,600	3.6			689,925	5.5		

Note: * Indicates a marginal estimate.

^a Indicates a significant difference $p < .001$

Within the sub-sample that perceived an unmet health service need in the past year ($N = 1,130,526$), 49.2% reported unmet perceived need for therapy or counseling, 21.5% reported unmet need for help with personal relationships, followed by 20.2% reporting unmet needs for information about mental illness and its treatments. The proportion of each unmet mental health service reported in the sub-sample is shown in Table 5, disaggregated by gender.

Chi-squares tests were computed to test for significant gender differences on the estimates within the sub-sample. With regards to the individual types of unmet mental health services, significant gender differences were found for only 3 of the 9 reported types of mental health services, including: help with financial problems, help with employment status and 'other' mental health service need. These are the same three unmet mental health services that were found to be significantly different by gender in the Canadian household population.

Type of unmet needs

Table 6 represents the estimated numbers of Canadians by gender, who report each category of unmet need. Table 7 presents the proportion of those reporting unmet needs that cite each category of need.

Table 6: Proportion of the Canadian population reporting each type of unmet need, by gender

Mental Health Service	Boys, Men			Girls, Women			Total		
	Est. #	Prev. (%)	95% CI	Est. #	Prev (%)	95% CI	Est. #	Prev (%)	95% CI
Info needs only	69,575	0.6	.42, .78	110,149	0.9	.68, 1.12	179,724	0.7	.56, .84
Treatment needs only	242,223	2.0	1.65, 2.35	360,484	2.8	2.43, 3.17	602,707	2.4	2.14, 2.66
Daily Living needs only (no treatment/info needs)	25,637*	0.2	.10, .30	23,867*	0.2	.10, .30	49,503	0.2	.13, .27
"Other" only need	28,710*	0.2	.10, .30	67,058	0.5	.35, .65	95,768	0.4	.30, .50

Note: * Indicates a marginal estimate.

^a Indicates a significant difference $p < .001$

In total, 3.7% of Canadian households had one category of unmet needs, and 0.8% of Canadian households had two or more categories of unmet mental health service needs. The majority of individuals with unmet perceived need for mental health service only one category of unmet needs. Of those with unmet perceived need for mental health services, 82.4% had one category of unmet needs, while 17.6% had two or more

categories of unmet mental health needs. A similar pattern emerges when the data is disaggregated by gender. For boys and men with unmet needs, 83.3% have one category compared to 81.9% for girls and women.

Table 7: Proportion of those with unmet needs who cite each type of need, by gender

	<u>Boys, Men</u>	<u>Girls, Women</u>	<u>Total</u>
<u>Mental Health Service</u>	<u>(%)</u>	<u>(%)</u>	<u>(%)</u>
Info needs only	15.8	16.1	16.0
Treatment needs only	55.1	52.6	53.6
Daily Living needs only (no treatment/info needs)	5.8	3.5	4.4
^a “Other” only need	6.5	9.8	8.5

Note: Does not sum to 100% because of multiple needs.

^a Indicates a significant difference $p < .001$

Within the group that only had one category of unmet needs, 65.0% had a ‘treatment only’ need, followed by 19.4% that had an ‘information only need’. A similar pattern is observed when disaggregated by gender. For boys and men with one category of unmet needs, 66.2% had a ‘treatment only’ need followed by 19% with an unmet ‘information only’ needs. For girls and women with one category of unmet needs, 64.2% had a ‘treatment only’ need followed by 19.6% with unmet ‘information only’ needs.

Chi-squares tests were computed to test for significant gender differences for each of the categories of unmet mental health needs. A significant difference was found for only one of the four categories: girls/women were significantly more likely to have reported an unmet ‘other only’ need than boys/men ($p < .05$).

4.2. MENTAL HEALTH BARRIERS: PROPORTIONS AND DESCRIPTIVE STATISTICS

I estimated the number of Canadians that reported specific barriers to accessing mental health services. These barriers fell into three categories: accessibility,

acceptability and availability. These categories are consistent with those used by Chen and Hou (2002). These estimates are presented as proportions in Table 8.

Table 8: Proportion of reported barriers to mental health services in Canadian population and in the sub-sample

Barriers	Canadian Households			Reported Unmet PN for Mental Health services		
	%			%		
	M	F	Tot	M	F	Tot
Accessibility Barriers	0.4	0.7	0.6	10.7	13.6	12.5
Couldn't afford	0.3	0.6	0.5	9.6	10.9	10.4
Transportation/childcare	NR	0.3	0.2	NR	5.3	4.4
Acceptability	2.8	4.1	3.5	77.3	76.6	76.9
Preferred to manage self	1.3	1.9	1.6	35.9	35.2	35.5
Thought nothing could help	0.3	0.6	0.4	7.7	11.2	9.8
Didn't know how to get help	0.5	0.9	0.7	15.2	16.0	15.7
Afraid to ask/what others would think	0.5	0.9	0.7	14.9	15.9	15.5
Didn't get around to it	0.8	0.9	0.9	23.8	16.0	19.0
Language	NR	NR	NR	NR	NR	NR
Personal/family responsibility	NR	0.3	0.2	NR	6.2	4.7
Availability	0.6	1.0	0.8	15.9	18.1	17.3
No help available in area	0.2	0.3	0.3	4.7	6.3	5.7
No help available at time	0.3	0.4	0.4	8.7	7.3	7.9
Wait too long	0.2	0.4	0.3	4.5	7.5	6.3
Other	0.4	0.5	0.5	11.2	10.0	10.5

Note: NR = Not releasable due to cell size not meeting release guidelines.

As can be seen in Table 8, 3.5% of Canadian households reported at least one acceptability barrier to mental health services. A gender difference is observed for acceptability barriers in the population. It was found that 4.1% of girls and women compared to 2.8% of boys and men reported at least one acceptability barrier. In the

sample with reported unmet perceived need for mental health services, the majority had acceptability barriers. In this sub-sample acceptability barriers were reported by 76.9% followed by availability barriers which were reported by 17.3%. Accessibility barriers were reported by 12.5% of the sub-sample.

In the sub-sample, specific barriers to mental health services most reported by girls and women include:

- Acceptability: Preferred to manage by self was reported by 35.2%
- Acceptability: Didn't know how to get help was reported by 16.0%
- Acceptability: Didn't get around to it was reported by 16.0%
- Acceptability: Afraid to ask/what others would think was reported by 15.9%
- Acceptability: Nothing could help was reported by 11.2%
- Accessibility: Couldn't afford to pay was reported by 10.9%

In the sub-sample, the barriers to mental health services most reported by boys and men include:

- Acceptability: Preferred to manage by self was reported by 35.9%
- Acceptability: Didn't get around to it was reported by 23.8
- Acceptability: Didn't know how to get help was reported by 15.2%
- Acceptability: Afraid to ask/what others would think was reported by 14.9%
- Other was reported by 11.2%
- Accessibility: Couldn't afford to pay was reported by 9.6%

To test for significant differences between the two genders on barriers to mental health services chi-square tests were computed. There were no significant differences

($p < .05$) observed for gender on grouped barriers. That is, there were no significant differences on accessibility, availability or acceptability barriers.

There were an insufficient number of respondents that reported ‘personal/family responsibility’, ‘language’, or ‘transportation/childcare’ as barriers. Therefore some proportions and estimates can not be released.

There were significant differences observed ($p < .05$) on four of the 13 individual cited barriers. Girls and women were significantly more likely to report the following barriers compared to boys and men:

- Thought nothing could help
- Wait too long
- Transportation/childcare
- Personal/family responsibility

Boys and men were significantly more likely to report cite ‘didn’t get around to it’ as a barrier to mental health services compared to girls and women. Barriers that were found to be significantly different by gender are presented in Table 9. These results should be interpreted with caution due to small cell sizes. Cell counts were less than 30 for four out of the five significant barriers. The only barrier that had adequate cell sizes was ‘thought nothing could help’

Table 9: Comparison of reported barriers by gender

Barrier	Chi-square	df	p
Transportation/childcare	6.10	1	0.01
Thought nothing could help	5.67	1	0.02
Wait too long	6.02	1	0.01
Personal/family responsibility	12.15	1	0.00
Didn’t get around to it	15.75	1	0.00

4.3. BIVARIATE STATISTICS

Odds ratios were computed to determine the relationship between income adequacy, gender and unmet perceived need for mental health services in Canada. The normalized weight was applied to all analysis, therefore the numbers that are reported represent the actual number of respondents that contributed to each question, and not to the number of people in the population it represents.

Comparisons were made between individuals who reported unmet perceived needs for mental health services and those who did not, on selected socio-demographic, health related and psych-social measures. The results of t-tests and chi-square analysis are presented in Tables 10-13.

Table 10: Socio-demographic variables among those with and without perceived need for mental health services by gender

<u>Demographic Variables</u>	<u>Did Not Report Unmet Perceived Need for Mental Health Services (N = 17, 704)</u>			<u>Reported Unmet Perceived Need for Mental Health Services (N = 1, 024)</u>		
	<u>%</u>			<u>%</u>		
	<u>M</u>	<u>F</u>	<u>Tot</u>	<u>M</u>	<u>F</u>	<u>Tot</u>
^a Gender						
Males	-	-	49.6	-	-	39.0
Females	-	-	50.5	-	-	61.0
^a Income Adequacy						
Lowest	2.7	3.2	3.0	5.8	7.2	6.6
Middle low	5.1	8.7	6.9	6.8	10.7	9.1
Middle	18.9	23.0	20.9	21.7	21.5	21.6
Upper middle	36.5	35.4	36.0	33.0	31.7	32.2
Highest	36.7	29.7	33.2	32.7	28.9	30.5
^a Age						
15- 24 yrs of age	16.9	15.2	16.0	25.4	30.0	28.2
25-44 yrs of age	38.4	36.8	37.6	50.5	46.0	47.8
45-64 yrs of age	31.1	30.8	31.0	20.8	20.1	20.4

65 or older	13.7	17.2	15.4	3.3	3.9	3.7
^aMarital Status						
Married, common law	64.1	60.8	62.4	48.5	46.2	47.0
Widowed/Separated/Div	8.3	17.3	12.8	11.2	14.0	12.9
Single, never married	27.6	21.9	24.8	40.4	39.8	40.1
^bEducation						
< than secondary	25.1	25.6	25.3	29.0	26.7	27.6
Secondary graduate	18.0	20.1	19.0	18.2	16.4	17.1
Post-secondary or some post-secondary	56.9	54.3	55.6	52.8	56.8	55.2
^aRecent Immigrant						
Recent immigrant	6.3	6.1	6.2	5.8	6.7	5.8
Immigrant, not recent	15.9	16.5	16.2	10.8	10.3	10.8
Not applicable	77.4	77.4	77.6	83.4	82.7	83.4
^aAboriginal Status						
Aboriginal ancestors	3.3	3.6	3.4	7.4	8.0	7.7
No Aboriginal ancestors	96.7	96.4	7.6	92.6	92.0	92.3
^aJob status over past year						
Job all past yr	59.9	48.3	54.4	53.5	45.0	48.3
w/o job or had job part of the year – look (not)	40.1	51.7	45.9	46.5	55.0	51.7
^bUrban/Rural						
Urban	80.7	81.4	81.1	82.5	84.2	83.5
Rural	19.3	18.6	18.9	17.5	15.8	16.5

Note: Totals may not add to 100% due to rounding. Proportions exclude missing data.

^a Indicates significantly different $p < .001$

^b Indicates significantly different $p < .05$

As can be seen from Table 10, compared to those without unmet perceived need for mental health services, those with unmet perceived need were more likely to be female (61% vs. 50.5%), have lower levels of income adequacy, be in two youngest age categories (76.0 % vs. 53.6%), be single (40.1% vs. 24.8%), be of Canadian origin (83.4% vs. 77.6%), be of Aboriginal ancestry (7.7% vs. 3.4%), and be without a job for at least part of the year (51.7% vs. 45.9%). All of these differences were found to be significantly different ($p < .001$) on chi-square tests. Significant differences were also found, though not as robust ($p < .05$) for educational status and rural/urban living. Those with reported unmet perceived need for mental health services were more likely to live in urban vs. rural areas (83.5% vs. 81.1%) and have slightly lower educational levels.

Comparisons were all made on health related measures. This information is displayed as proportions, disaggregated by gender in Table 11.

Table 11 : Proportion of health related and psych-social factors

Health measures	No Reported Unmet Mental health Service Needs			Reported Perceived unmet Mental health Service Needs		
	%			%		
	M	F	Tot	M	F	Tot
^aSelf-rated health (HDI)						
Poor or fair	10.1	11.1	10.6	20.5	19.7	20.0
Good	27.7	27.9	27.7	34.7	35.2	35.0
Very Good or excellent	62.5	61.0	61.7	44.8	45.1	45.0
^aSelf-rated Physical Health						
Poor or fair	11.9	14.0	13.0	25.5	24.4	24.9
Good	31.8	34.0	32.9	37.7	40.0	39.1
Very Good or Excellent	56.2	25.0	54.1	36.7	35.6	36.0
^aSelf-rated Mental Health						
Poor or Fair	4.9	6.3	5.6	35.2	30.3	32.2
Good	24.5	26.5	25.5	35.0	38.8	37.3
Very Good or Excellent	70.6	67.2	68.9	29.8	30.9	30.5
^aSelf-Perceived Stress						
Not at all/Not Very	39.4	35.7	37.6	15.1	12.1	13.3
A bit	40.0	41.4	40.7	33.4	37.5	35.9
Quite a bit/Extremely	20.6	22.8	21.7	51.5	50.4	50.8
^aChronic Conditions						
Yes	64.5	73.0	68.8	78.0	82.2	80.5
No	35.5	27.0	31.2	22.0	17.8	19.5
^aNumber of Chronic Conditions						
0-1	57.8	46.8	52.2	38.8	34.1	35.9
2-3	30.6	32.5	31.6	42.9	38.0	40.0
4 or more	11.6	20.7	16.3	18.7	27.9	24.1
^aMental Disorder in past yr						
Yes	8.5	9.5	8.7	56.9	49.2	50.3
No	91.5	90.5	88.2	43.1	50.8	46.1
^aResources uses in past year						
Yes	5.6	10.5	8.1	35.5	42.6	39.9
No	94.4	89.5	91.9	64.5	57.4	60.1

Note: Totals may not add to 100% due to rounding. Proportions excludes missing data.

^a Significantly different $p < .001$

As can be seen from Table 11, those with reported unmet perceived need for mental health services once again look quite different than those that did not report an

unmet need for all health related measures. Those with unmet perceived need were more likely to have poorer ratings of health, physical health and mental health. This is particularly pronounced for self-rated mental health. 24.9% of those with reported unmet perceived need for mental health services rated their mental health over the past year as poor or fair, compared to 5.6% of those that did not report unmet perceived need for mental health services. Those with unmet perceived need were also more likely to report higher levels of stress and have more chronic health conditions. Compared to respondents that did not report unmet perceived need for mental health services, 39.9% compared to 8.1% used mental health resources in the past year, and 50.3% vs. 8.7% met criteria for one of the mental disorders assessed by the CCHS 1.2. All of these differences were found to be significantly different ($p < .001$) on chi-square tests.

In the group that had reported unmet perceived need for mental health services: 56.9 % of boys and men compared to 49.2 % of girls and women, had met criteria for one of the surveyed mental disorders in the previous year; and 42.6% of girls and women compared to 35.5% of boys and men had reported that they had used mental health resources in the past year. In the group with unmet perceived need for mental health services, there were roughly equal numbers of people that met criteria for one of the surveyed mental disorders compared to those that did not.

Table 12: Psych-social measures

Psych-social measures	No PN for Mental health Services		Unmet PN for Mental Health Services		T	Sig
	Mean	SD	Mean	SD		
Well-being						
Boys/Men	82.79	13.21	65.51	17.19	32.09	.000
Girls/Women	81.84	13.95	66.22	16.44	34.16	.000
Total	82.31	13.60	65.94	17.73	47.17	.000

Distress						
Boys/Men	4.77	4.88	12.85	7.34	-	.000
Girls/Women	5.19	5.18	12.32	7.66	40.48	.000
Total	4.98	5.04	12.53	7.54	41.41	.000
					58.14	
Social Support Subscales						
Tangible						
Boys/Men	13.86	3.12	11.46	4.50	18.89	.000
Girls/Women	13.40	3.28	11.77	4.14	14.97	.000
Total	13.63	3.21	11.65	4.29	24.02	.000
Affectionate						
Boys/Men	10.56	2.35	8.70	3.38	19.38	.000
Girls/Women	10.76	2.09	9.70	2.82	15.29	.000
Total	10.66	2.23	9.31	3.09	23.63	.000
Pos Soc Inter						
Boys/Men	13.83	2.99	11.21	4.07	21.54	.000
Girls/Women	13.78	2.96	12.02	3.88	17.89	.000
Total	13.80	2.97	11.70	3.98	27.50	.000
Emotional/Info						
Boys/Men	26.89	6.18	20.66	8.09	24.88	.000
Girls/Women	27.41	5.71	23.71	7.68	19.47	.000
Total	27.15	5.95	22.51	7.98	30.36	.000

T-tests were computed to compare groups on continuous measures. The results of these t-tests are in Table 12. As can be seen from Table 13, respondents with unmet perceived need for mental health services had significantly ($p < .001$) lower levels of all measures of social support, and psychological well-being, and higher levels of distress compared to the group with no reported unmet mental health service needs.

Relationship between gender, income and perceived need for mental health

To determine the relationship between income adequacy, gender and reported unmet perceived need for mental health services; proportions and odds ratios were computed. Table 13 presents the proportion of respondents in each income category that reported unmet perceived need for mental health services, disaggregated by gender.

Table 14 presents the odds of reporting unmet perceived need for mental health services by income adequacy for both genders.

Table 13: Proportion of Unmet PN for Mental Health Service by Income Adequacy

Income Adequacy	Boys, Men %	Girls, Women %	Total %
Lowest	7.4	11.3	9.5
Lower Middle	4.8	6.5	5.9
Middle	4.2	5.0	4.7
Upper Middle	3.3	4.8	4.1
Highest	3.3	5.2	4.2

As can be seen in Table 14, there is an inverse relationship observed between income adequacy and the odds of reporting unmet perceived need for mental health services. The odds are increased by 2.43 for the lowest income group compared to those in the highest group. This same pattern is observed in boys and men and in girls and women (Table 15).

Table 14: Odds of reporting unmet PN mental health services by income adequacy:
Both genders

Income Adequacy	% Unmet PN for MH Services	Odds Ratio	95% CI	
			Lower	Upper
Lowest	9.5	2.43	1.94	3.05
Lower Middle	5.9	1.44	1.18	1.75
Middle	4.7	1.12	0.97	1.30
Upper Middle	4.1	0.98	0.86	1.11
Highest	4.2	1.0	--	--

Table 15: Odds of reporting unmet PN mental health services by income adequacy

Gender	Income Adequacy	% Unmet PN for MH Services	Odds Ratio	95% CI	
				Lower	Upper
Boys / Men	Lowest	7.4	2.4	1.63	3.42
	Lower Middle	4.8	1.5	1.05	2.09
	Middle	4.2	1.3	1.03	1.61
	Upper Middle	3.3	1.0	0.83	1.23
	Highest	3.3	1.0	--	--
Girls / Women	Lowest	11.3	2.3	1.74	3.08
	Lower Middle	6.5	1.3	0.99	1.60
	Middle	5.0	0.96	0.79	1.16
	Upper Middle	4.8	0.91	0.77	1.09
	Highest	5.2	1.0	--	--

Due to the large association of age with the dependent measure, age adjusted odds ratios were also computed to determine the odds of reporting unmet perceived need for mental health services by income adequacy after controlling for age. As can be seen in Table 16, the trend and strength of relationship remains even after controlling for age.

Table 16: Odds of reporting unmet PN for mental health services by income adequacy: adjusting for age

Gender	Income Adequacy	Odds Ratio	95% CI	
			Lower	Upper
Boys / Men	Lowest	2.33	1.61	3.38
	Lower Middle	1.57	1.12	2.22
	Middle	1.44	1.15	1.80
	Upper Middle	1.04	0.85	1.27
	Highest	1.00	--	--
Girls / Women	Lowest	2.48	1.85	3.32
	Lower Middle	1.49	1.16	1.90
	Middle	1.12	0.92	1.36
	Upper Middle	0.97	0.82	1.16
	Highest	1.00	--	--
Both Genders	Lowest	2.51	2.0	3.15
	Lower Middle	1.62	1.33	1.98
	Middle	1.28	1.12	1.49
	Upper Middle	1.02	0.89	1.16
	Highest	1.00	--	--

The odds of reporting unmet perceived need for mental health services was further tested by controlling for age and meeting criteria for one of the surveyed mental disorders in the CCHS 1.2. These odds are reported in Table 17. The trend and relationship still remains after adjusting for age and diagnosis of a mental illness in the previous year, but the relationship becomes slightly less strong. The odds of the lowest income group reporting unmet perceived need for mental health services falls to 1.64 for both men and women when adjusting for age and diagnosis compared to 2.51 when just age was accounted for.

Table 17: Odds of reporting unmet PN for mental health services by income adequacy: adjusting for age and mental disorder

Gender	Income Adequacy	Odds Ratio	95% CI	
			Lower	Upper
Boys / Men	Lowest	1.65	1.10	2.48
	Lower Middle	1.49	1.03	2.15
	Middle	1.42	1.11	1.81
	Upper Middle	1.03	0.83	1.27
	Highest	1.00	--	--
Girls / Women	Lowest	1.54	1.12	2.12
	Lower Middle	1.12	0.86	1.45
	Middle	1.01	0.83	1.24
	Upper Middle	0.89	0.74	1.07
	Highest	1.00	--	--
Both Genders	Lowest	1.64	1.28	2.11
	Lower Middle	1.31	1.06	1.62
	Middle	1.21	1.03	1.41
	Upper Middle	0.96	0.84	1.18
	Highest	1.00	--	--

Another way of examining the gender-specific relationship between income and unmet perceived need for mental health services is to compute the odds of reporting unmet perceived need for mental health services after adjusting for income adequacy. These odds are reported in Table 18. As can be see in this table, the odds of reporting

unmet perceived need for mental health services is between 1.46 and 1.54 for girls and women compared to boys and men. The odds decrease only slightly after controlling for income adequacy, age, and meeting criteria for one of the surveyed mental health disorders in the previous year.

Table 18: Odds of reporting unmet PN for mental health services for gender

<u>Adjusting for</u>	<u>Odds Ratio</u>	<u>95% CI</u>	
		<u>Lower</u>	<u>Upper</u>
None	1.544	1.396	1.707
Income adequacy	1.455	1.309	1.617
Income adequacy, Age	1.489	1.340	1.656
Income adequacy, Age, Diagnosis	1.468	1.311	1.643

Note: Males are the reference group

Relationship between gender, income and barriers

To determine the relationship between income adequacy and reported barriers to mental health services, the proportion and odds of reporting each category of barriers for each level of income adequacy was computed. Proportions were calculated by determining the frequency of each category of barriers by income adequacy quintile in respondents that reported unmet perceived need for mental health services.

Proportions are reported in Table 19 for two levels (instead of five levels) of income adequacy because cell sizes were found to be too small (N<30) to be reported here by five levels of income adequacy.

Table 19: Proportion of Unmet PN for Mental Health Service by Income Adequacy

<u>Income Adequacy</u>	<u>Accessibility</u>			<u>Acceptability</u>			<u>Availability</u>		
	<u>%</u>			<u>%</u>			<u>%</u>		
	<u>M</u>	<u>F</u>	<u>T</u>	<u>M</u>	<u>F</u>	<u>T</u>	<u>M</u>	<u>F</u>	<u>T</u>
Low/ Mid low	xx	xx	15.2	73.4	66.8	68.9	Xx	25.6	22.8
Mid/ Up Mid/ High	xx	xx	12.0	76.8	76.1	76.4	Xx	17.0	16.4

Note: xx not reportable because cell size is less than 30.

The odds of reporting each category of barriers by income adequacy quintile was determined by computing a logistic regression. Logistic regression analysis provides odds ratios for each level of the independent variable. Only respondents that reported unmet perceived need for mental health services were selected for inclusion in these analyses. Table 20 presents the odds of reporting each category of barriers by income adequacy combining both genders. The odds can not be reported here by gender as cell sizes were too small.

Table 20: Odds of reporting accessibility, acceptability or availability barriers by income adequacy

Income Adequacy	Accessibility			Acceptability			Availability		
	OR	CI Low	CI High	OR	CI Low	CI High	OR	CI Low	CI High
Lowest	2.18	1.16	4.10	0.538	0.34	0.85	2.31	1.40	3.81
Lower Middle	1.90	1.06	3.41	0.85	0.55	1.32	1.28	0.78	2.11
Middle	2.31	1.48	3.60	0.97	0.70	1.36	1.11	0.75	1.64
Upper Middle	1.63	1.06	2.52	1.08	0.80	1.47	1.24	0.88	1.75
Highest	1.00	--	--	1.00	--	--	1.00	--	--

As can be seen in Table 20, lower levels of income adequacy tend to be associated with higher odds of reporting accessibility barriers. The odds associated with income and acceptability and availability have too much error associated with them as the confidence interval associated with acceptability and availability measures contains the value of 1.0.

4.4. MULTIVARIATE ANALYSIS/MODELLING

To determine the relationship between gender, income adequacy and perceived need for mental health services in Canada two steps were undertaken. The first step consisted of a series of regressions to determine which factors are related to the outcome measure. The second step consisted of predicting unmet perceived need for mental health

services with income adequacy and gender after controlling for the variables that were determined to be related to the outcome measure. The first step can be referred to as “selection of confounding variables” and the second step can be referred to as “predicting unmet perceived need for mental health services”.

Selection of confounding variables

To determine which variables are potentially confounding factors, we first selected factors that were related to mental health needs, mental health service seeking, or to unmet mental health service needs in the literature. These variables included socio-demographic, cultural, health related, psych-social, social support and mental health use/need variables. Each set of variables was entered separately into an age adjusted logistic regression to predict unmet perceived need for mental health needs. The variables that added significantly to the outcome were retained. Variables that were found to be redundant or did not add significantly to the model were not selected for the final model. The results of these analyses are summarized below:

Step A

Socio-demographic

Job status over the past year, educational level and urban/rural residence was entered into an age adjusted logistic regression. To adjust for age in a logistic model, age is entered into the first step, and the socio-demographic variables are entered into the second step. This analysis revealed that after controlling for age, only job status remained in the model ($p < .001$) and therefore was retained.

Culture/Ethnicity

Aboriginal and immigration status were entered into an age adjusted logistic regression, and only Aboriginal status remained in the model ($p < .001$) and was therefore retained.

Health-Related

Two self rated measures: self-rated general health and self-rated physical health were evaluated by entering them together in an age-adjusted logistic regression. They were both found to be related to the outcome ($p < .001$) and thus both were retained and further evaluated. They were then evaluated separately against a model containing age. They were both found to add a significant contribution to the change in model chi-square, therefore they were both retained and tested against a model containing the number of chronic conditions. Chronic conditions was also found to contribute to the change in model chi-square. Therefore all health related measures: number of chronic conditions, self-rated general health and self-rated physical health were retained.

Psych-Social

Two self-rated measures: stress and mental health were evaluated by entering them together in an age-adjusted logistic regression. They were both found to be related to the outcome ($p < .001$). They were then evaluated separately against a model containing age. They were both found to add a significant contribution to the change in model chi-square, therefore they were both retained.

Social-Support

The four measures of the social support scale were evaluated by entering them together in an age-adjusted logistic regression. Only two social support scales: social interactions and emotional support remained in the model. These two scales were further

evaluated. A model containing age and the two social support scales were tested against a model containing age to determine the change in model error, or the unique contribution of the two social support scales. The social support subscales were found to uniquely contribute to the change in model chi-square and therefore were both retained and evaluated against a model containing the addition of marital status. Marital status was also found to contribute to the change in model chi-square, and therefore marital status, social interactions and emotional support will be retained.

Mental health need/use

Use of mental health resources in the past year and meeting criteria for one of the surveyed mental disorders were entered into an age adjusted logistic regression, and both remained in the model ($p < .001$) and was therefore retained.

Step B

Each category of variables (separate regressions for socio-demographic variables, cultural variables, health-related variables, psych-social variables and social support variables) that were retained were then entered separately into a regression that controlled for age, use of mental health resources in the past year and diagnosis of mental disorder in the past year. Marital status, social interactions, job status and aboriginal ethnicity no longer predicted the outcome after controlling for age, resources used and diagnosis of mental disorder and therefore were not retained for inclusion in the final model.

The variables that were found to contribute to the model and predict the outcome measure, and thus will be included in the final model as confounding variables include: age, mental health resources used, diagnosis of mental disorder, social support, self-rated

stress, self-rated mental health, number of chronic conditions, self-rated physical health and general health.

Final Model

To examine whether income adequacy and gender predict unmet perceived need for mental health services a final model was run that contained all of the measures of interest and the confounding variables in a logistic regression that applied the bootstrap weights. The dependent measure was unmet perceived need for mental health services. The independent variables included: age, mental health resources, diagnosis of a mental illness, emotional support, self rated stress, self rated mental health, self rated general health, self rated physical health, number of chronic conditions, income adequacy, and gender. The results of this regression, that applied the bootstrap weights is in Table 21.

Table 21: Final Logistic Regression Model, with bootstrap weights

Variables	bhat	Odds	p value	95% CI	
				Lower	Upper
Age 15-24	1.84	6.30	.000	4.22	9.39
Age 25-44	1.33	3.79	.000	2.66	5.41
Age 45-64	0.59	1.82	.001	1.26	2.62
Age > 65	--	1.00	--	--	--
Mental illness past year	1.30	3.68	.000	3.06	4.43
Used mental health resources	0.87	2.38	.000	1.93	2.93
Emotional support	-0.07	0.93	.000	0.92	0.94
Stress: None	--	1.00	--	--	--
Stress: A bit	0.36	1.44	.002	1.14	1.82
Stress: Quite a bit/extremely	0.80	2.22	.000	1.72	2.86
Mental health: poor or fair	1.11	3.02	.000	2.24	4.08
Mental health: good	0.61	1.83	.000	1.47	2.29
Mental health: very good or exc	--	1.00	--	--	--
General Health: poor or fair	0.21	1.23	0.325	0.81	1.86
General Health: good	0.13	1.15	0.245	0.91	1.45
General Health: very good or exc	--	1.00	--	--	--
Physical health: poor or fair	-0.08	0.93	.692	0.63	1.35
Physical health: good	-0.02	0.98	.897	0.78	1.24

Physical health: very good or exc	--	1.00	--	--	--
0-1 Chronic conditions	--	1.00	--	--	--
2-3 Chronic conditions	0.26	1.30	.027	1.03	1.64
4 or more chronic conditions	-0.11	0.89	.403	0.69	1.16
Lowest income adequacy	-0.22	0.80	.187	0.58	1.11
Lowest middle income adequacy	-0.36	0.70	.025	0.51	0.95
Middle income adequacy	-0.16	0.85	.151	0.68	1.06
Upper middle income adequacy	-0.19	0.82	.069	0.67	1.01
Highest income adequacy	--	1.00	--	--	--
Gender: female	0.39	1.47	.000	1.23	1.76

As can be seen in Table 21, when all of the variables are entered into the regression together, income adequacy does not predict the unmet perceived need for mental health services ($p > .001$), but gender does. After accounting for the effects of the confounding effects, gender stays in the model ($p < .001$). The odds of girls and women reporting unmet perceived need for mental health services, holding everything constant is 1.47. The only other factors that remain in the model, holding everything else constant is age, mental illness in the past year, use of mental health resources in the past year, emotional social support, self-rated stress, self-rated mental health, and gender.

To determine the unique contribution of gender, logistic regression analysis was carried out entering one set of variables at a time in order to compare the change in model-square to determine the unique effect of each set of variables. That is, age was entered into Model A. Age, use of mental health resources, and diagnosis of a mental illness in the past year was entered in model B. To determine the unique contribution of mental health resource use and diagnosis of mental illness, a comparison of model B to Model A reveals a chi-square difference 1942.61 with 2 df. This is a significant contribution to the model and therefore we can confidently conclude that the addition of

mental health resources and meeting criteria for mental illness uniquely predicts unmet perceived need for mental health services.

Bootstrapping does not produce model chi-square results or calculate confidence intervals at 99.9%, which was desired. Therefore, these regressions were calculated without applying the bootstrap procedure. The results of these analyses are contained in Table 22. As can be seen in Table 22, the addition of mental health resources and mental illness adds a significant change to the model chi-square. The addition of all the additional confounding variables in Model C adds a significant 771.93 change in model chi-square, with 11 degrees of freedom. Adding income to the model does not contribute to a significant change in model chi-square. It only adds a change in the model chi-square of 10.48, with 4 degrees of freedom. This is not significant ($p > .05$). The addition of gender to the model does add a significant change to the model chi-square by providing an additional 43.38 to the model chi-square, with 1 df. Therefore, after controlling for use of mental resources in the past, having a mental illness in the past year, and all of the confounding factors, income adequacy does not predict the unmet perceived need for mental health services, but gender does have a unique contribution to the model.

Table 22: Model comparisons

Variables	Model Chi-Square	df	P	Change in Model Error		
				Chi-square Change	Df	P
Model A	437.02	3	.000			
Age						
Model B	2379.63	5	.000	1942.61	2	<.001
Age						
Mental health resources						

Mental illness						
Model C	3151.56	16	.000	771.93	11	<.001
Age						
Mental health resources						
Mental illness						
Emotional support						
Self rated stress						
Mental health						
General health						
Physical health						
Chronic conditions						
Model D	3162.04	20	.000	10.48	4	NS
Model A						
Model B						
Model C						
Income						
Model E	3205.42	21	.000	43.38	1	<.001
Model A						
Model B						
Model C						
Model E						
Gender						

NS = not significant (p>.00a)

CHAPTER 5: DISCUSSION/CONCLUSION

5.1. SUMMARY OF KEY FINDINGS

In this study we sought to:

- Estimate unmet perceived need for mental health services in Canada, by income adequacy and gender.
- To evaluate the differences between those with reported unmet perceived need for mental health services to those without, on selected socio-demographic, cultural, health related, psych-social and health need/use factors.
- To determine the relationship between income adequacy, gender and unmet perceived need for mental health services and reported barriers.

- To determine whether income adequacy and gender predict unmet perceived need for mental health services after controlling for other factors that are related to unmet perceived need for mental health services.

Estimates: Key findings

This study found that 5.5% of Canadian girls and women, approximately 689, 926 females; and 3.6% of Canadian boys and men, approximately 440, 600 males reported an unmet perceived need for mental health services in the year prior to the survey. Overall 4.5% of Canadian households had an unmet perceived need for mental health services in the year prior to the survey. This difference observed for gender was statistically significant. Overall, 61% of those who reported unmet perceived need for mental health services were female.

A larger percentage of Canadians in lower income adequacy quintiles and younger age groups, compared to those with higher income adequacy and or those in older age groups, reported unmet perceived need for mental health services. .

Within the group with reported unmet perceived need for mental health services, both genders indicated that the service that they were most in need of but did not receive was for therapy or counseling. The second most frequently reported unmet need for girls and women was for help with relationships, with information needs third. For boys and men the second most reported unmet need was for information about mental illness and its treatments, with relationship issues cited as third. This difference in order was not significant. Among those who reported unmet perceived need for mental health services, there were no gender differences observed for type of unmet mental service need for 6 out of 9 potential services. That is, there was no gender difference observed with chi-

square test within the unmet needs group for likelihood of reporting unmet need for: information about mental illness and its treatments, information on the availability of services, therapy or counseling, help with personal relationships or help with housing problems. Boys and men were significantly more likely than girls and women to report unmet need for 'help with financial problems', 'help with employment status' and 'other'.

Comparisons: Key findings

Compared to respondents who did not report unmet perceived need for mental health services, those with reported unmet perceived need for mental health services were found to differ significantly on socio-demographic, health related, health service need/use and psych social measures. Those with unmet perceived need were significantly more likely to be female, have lower levels of income adequacy, be in two youngest age categories, be single, be of Canadian origin, be of Aboriginal ancestry, been without a job for at least part of the year, live in urban areas, have lower educational levels, have used mental health resources in the past year, have met criteria for one of the mental disorders assessed by the survey, have lower levels of all measures of social support, poorer psychological well-being, poorer self rated mental health/general health/physical health, more chronic conditions and higher levels of distress.

Relationship between income, gender and unmet perceived need for mental health services and reported barriers: Key findings

Bivariate analysis revealed an inverse relationship between income adequacy and unmet perceived need for mental health services. This relationship was observed for both genders. Compared to respondents in the highest income category, respondents in the

lowest income category were 2.43 times more likely to report unmet perceived need for mental health services. This relationship remains after controlling for the most confounding factors: age and meeting criteria for a mental illness in the past year. Gender was found to be related to reporting unmet perceived need for mental health services, after adjusting for income adequacy, age and mental illness in the past year. After adjusting for age, income adequacy and mental illness in the past year, women were 1.46 times more likely than men to report unmet needs.

The relationship between income adequacy, gender and reported barriers is less clear, likely because of small sample size. The only relationship that was observed was a slight inverse relationship between income and accessibility barriers.

Predicting unmet perceived need for mental health services: Key findings

Being female was found to significantly predict unmet perceived need for mental health services after controlling for age, use of mental health resources in the past, having a mental illness in the past year, and other socio-demographic, cultural, health related, psych-social and social support confounding factors. After controlling for the confounding factors, income adequacy did not add to the model.

5.2. DISCUSSION OF KEY FINDINGS

Estimation

The estimated number of respondents reporting unmet perceived need for mental health services is similar to what Wilson and Rosenberg (2004) found. We found that 4.5% of Canadian households reported an unmet perceived need for mental health services in the year prior to the survey. Wilson and Rosenberg (2004) found that 5.9% of Canadian population, aged 25 years or older reported not receiving care when needed for

general health services. It was expected that our rate would be lower than what Wilson and Rosenberg had found as their rate did not exclude mental health services, but did not explicitly inquire about mental health services.

Previous research has estimated perceived need for mental health services in Canada to be substantially higher than what is estimated here. For example, Sareen and colleagues (2005) reported that 12% of Canadians had a self-perceived need for mental health treatment whereas our study found that 4.5% of Canadian households had unmet perceived need for mental health services. This difference can be accounted for by the way that perceived need was measured. Sareen and colleagues (2005) defined perceived need as either help-seeking or perceived need without help seeking, which would include more respondents than our study. They did not attempt to estimate the proportion with unmet perceived need. In addition, our study did not include those who sought and received help, as we were trying to capture the group that had their needs unmet.

Comparisons

As stated above, those that indicated unmet perceived need for mental health services were significantly more likely to be female, have lower levels of income adequacy, be in two youngest age categories, be single, be of Canadian origin, be of Aboriginal ancestry, been without a job for at least part of the year, live in urban areas, have lower educational levels, have used mental health resources in the past year, have met criteria for one of the mental disorders assessed by the survey, have lower levels of all measures of social support, poorer psychological well-being, poorer self-rated mental health/general health/physical health, more chronic conditions and higher levels of distress. The differences observed are similar to previous studies that examined the

correlates of perceived need and help seeking. Sareen, Cox and colleagues (2005) found that the gender, age, ethnicity, immigrant status, marital status, education and income were all associated with perceived need and with help-seeking

Income Adequacy

It was hypothesized that low income adequacy would increase the odds of reporting unmet perceived need for mental health services. This hypothesis was found to be true, but only up to a point. Respondents in the lowest income adequacy quintile had the highest odds of reporting unmet perceived need for mental health services but the odds decreases when adjusting for age, use of mental health resources and past mental illness. Income adequacy did not significantly predict unmet perceived need for mental health services after controlling for all of the factors that were found to be related to the outcome measure. The reason for this finding may be because the model was too stringent. Indeed, an inverse relationship was observed between income adequacy and unmet perceived needs after adjusting for a smaller number of factors including age, use of mental health resources and meeting criteria for a mental illness.

Perhaps income adequacy did not predict unmet perceived need for mental health services in the logistic regression analysis because the factors that were in the model are more likely to occur in lower income groups, such as low social support, use of mental health resources, meeting criteria for mental illness, and self rated measures of health. Because this is a retrospective study it is not possible to determine whether these factors are a function of having mental illnesses or having unmet mental health needs or whether they are the cause of perceiving mental health needs or unmet mental health needs. It

would be useful if future studies addressed whether these factors were evenly distributed among different income groups.

Because we can not distinguish perceived need from *unmet* perceived need in this study, another possibility is that individuals in lower income groups were less likely to perceive the need for mental health services regardless of whether they consequently sought services or not. More research is needed in this area.

Other studies that have examined income in relation to mental health services have looked at whether service use differs by income group. Steele, Glazier and Lin (2006) found that those living in the highest socioeconomic status neighborhoods were 1.6 times more likely than those from lower socioeconomic neighborhoods to use psychiatric services. Though the results of our study suggests inequality, we can not determine whether observed differences are related to differences in perceived need or in differences related to the ability to access services. However, in light of Steele, Glazier and Lin (2006) I would conclude that it is likely that income did not predict unmet perceived need for mental health services in our study because lower income groups are less likely to perceive a need for mental health services. I would expect that if we were able to distinguish perceived need for services from unmet needs we would find an inverse relationship between income and unmet needs after adjusting for perceived need.

Gender

Being female was found to significantly predict unmet perceived need for mental health services after controlling for age, use of mental health resources in the past, having a mental illness in the past year, and other socio-demographic, cultural, health related, psych-social and social support confounding factors. 5.5% of girls and women compared

to 3.6% of boys and men reported an unmet perceived need for mental health services. This difference could be related to differences in perceiving need for mental health services, differences in assessing the mental health care system, or both. I think it is unlikely that the differences observed are related to women being more likely to have a mental illness because the regression analysis did control for the presence of diagnosed mental illness. The CCHS 1.2, however did not include all of the relevant disorders that are known to be more prevalent in women. For example, women are more likely to meet criteria for dysthymia, generalized anxiety disorder, simple phobias and obsessive compulsive disorder compared to men (Kessler, McGonagle, et al., 1994). All of these disorders were not measured by the CCHS 1.2 and may account for the gender differences.

Gender differences were most likely related to women being more likely to perceive a need for mental health services compared to men because they are more likely to use both general health services and mental health services (Drapea, Lesage & Boyer, 2005; Bland, Newman & Orn, 1997).

5.3. IMPLICATIONS OF STUDY AND NEXT STEPS

This study has implications for policy, practice and research. With regards to policy I would recommend that gender-based-analysis be incorporated into program planning in the area of mental health service planning, and in policy development. The federal government first introduced the concept of gender-based analysis as an analytic tool. I recommend that all branches of government, regardless of political ideology, continue to use gender based analysis in all aspects of their work including policy development, program planning, and research design and analysis. In situations where

gender based analysis can not be fully implemented I would suggest that at the very least policy makers need to ask “Could sex and gender be important here? Is the policy in place valid for both genders?”

This study found consistently that being female predicts unmet perceived need for mental health services in Canada, possibly due to both an increase in perceived need among women and an increase in barriers for women. Program planners should take this gender difference into account. Some possibilities could include a public awareness campaign around recognizing symptoms of common mental illnesses. This campaign should be targeting at boys and men and at mental health providers regarding the differences in how men and women present symptoms and seek services. Program planners and government policies should also ensure that women’s mental health concerns are addresses in the development of mental health services.

Although income adequacy did not predict unmet perceived need for mental health services after controlling for the many factors that are related to the outcome measure; an inverse relationship was observed between income adequacy and unmet mental health needs. The implication of this finding is that policies and programs that address mental health services in Canada should determine whether mental health services are being offered in a way that ensures that low income earners are able to afford both the direct costs and indirect costs of mental health service use.

The knowledge gained on type of barriers reported indicate when policy makers and planners should put emphasis on access to information. The barrier that was most cited by individuals with unmet perceived need for mental health services was “preferred to manage by self”. Possible policy recommendations that could address this, could

include a public awareness campaign on the availability of self-help materials (including books and through the internet) or by increasing the awareness among general practitioners about the availability of self-help books that have been found to be effective among self-help groups.

With regards to the implications for research, individuals in this study with unmet perceived need for mental health services reported higher levels of stress, poorer levels of mental health, higher likelihood of mental illness in the past year and more chronic diseases than the rest of the Canadian population. Therefore it is imperative that when designing research that seeks to understand the patterns or correlates of mental health needs in Canada, that research include measures of perceived need and perceived unmet mental health needs. A second implication of this study is that gender based analysis be applied to research that evaluates the health care system, or seeks to determine the factors related to treatment seeking or unmet mental health needs.

Next steps

Future research should explore unmet perceived need for mental health services and differentiate this from perceived need for mental health services. One of the limitations of this study is that it is impossible to know whether the differences observed for gender or income regarding reporting unmet perceived need for mental health services is related to differences in perceiving need, to having more barriers accessing mental health services, or both. Therefore, it is suggested that future research address both the perception of need and self-perceived unmet needs when examining the correlates and predictors of unmet needs in Canada.

There has been a call to shift from a service-driven model to a needs-driven pattern of health care delivery in Canada (Lightfoot, 1995). If this is to be achieved, the focus needs to shift from determinants of mental health service use to that of mental health service need, and more importantly of unmet mental health needs.

It was not possible to fully explore the relationship between income and reported barriers in this study due to sample size. Future research should also examine the relationship between income and barriers to mental health services for a more complete picture of the accessibility of the mental health care system.

This study attempted to account for rural/urban differences by testing to see whether residence predicted the outcome variable. However, it would be fruitful for future research to examine provincial differences, as each province covers different mental health services and service providers, thus making affordability of care more of an issue in provinces that cover fewer services. In addition, there has been some recent evidence to suggest that different socio-demographic determinants affect health service use in different provinces (Vasiliadis, Lesage, Adair & Boyer, 2005) and therefore this is an area that needs more research attention as to how income might be related to mental health service use and unmet mental health service needs in different provinces/territories.

Due to the association of gender with unmet perceived need for mental health services, more research that investigates the social context in which women find themselves in need of mental health treatment is needed. Miranda and Bruce (2002) noted that future research should examine how changing roles for women affect their risk for affective disorders and their help-seeking behaviors, and how changing social

attitudes regarding women's roles, work achievement and child-care responsibilities, affect the stigma related to affective disorders and seeking care, as well as help-seeking patterns.

It is also recommended that future research incorporate mixed methods and qualitative approaches to determine the relationship between income and unmet mental health needs in Canada. Qualitative and mixed methods approaches could help to shed light on the life circumstances that are occurring in the home, the work place and in society that acts as a barrier to mental health services. For example do clinics, hospitals and offices that provide counseling services appear less safe or less hospitable in low income neighborhoods? Is there more stigma ingrained in blue-collar work environments than in white-collar work environments that might inhibit use of free mental health services at the office? Qualitative research could also help to investigate other barriers to mental health services that are not easily captured with a survey. Qualitative research should aim to determine the barriers to mental health services among low earning women with mental health needs.

5.4. LIMITATIONS OF THE STUDY

The CCHS is a self-reported survey and thus interpretation of results produced with this survey is subject to errors related to recall, recognition error and perception of the individual. Respondents may have difficulty recognizing their health care needs and recalling the specific circumstances in which care was needed but not received. It is also possible that some groups are more likely than others to have difficulty with recognition and recall.

The survey provides cross-sectional information and therefore we can not evaluate whether needs were subsequently met. The questions related to most of the measures in this study were often assessed with one question. These brief assessments were non-specific. Of particular concern is the assessment of unmet perceived need for mental health services and the barriers to these services. Both variables were assessed with one question, but asked respondents to include the last year. The recall period therefore could be as long as a year and thus subject to error. In addition, if individuals had more than one experience of needing/wanting help for mental health reasons but did not receive it, it is not clear which of these experiences they are responding to in the survey. Self-reports of unmet need and reported barriers are also very subjective. For example the interpretation of "wait too long" can vary greatly depending on how one views the construct.

The CCHS excluded important populations in Canada, such as individuals living in institutions (including psychiatric facilities and prisons) and those living in the Territories or on reserves. Therefore the findings from this study are not generalizable to the entire Canadian population. The excluded groups represent high risk and lower socio-economic status individuals. The inclusion of these populations in the study may have resulted in an increased risk for women and for economically disadvantaged populations. In other studies, incarcerated women were found to have a higher lifetime prevalence than women in community samples of many psychiatric disorders, including major depression (19% vs. 8.1%) and higher rates of alcohol problems 36% vs. 4.3%) (Laishes, 2002).

A limitation of this study, discussed in Wilson & Rosenberg (2004), concerns the interpretation of actual accessibility and reported barriers to receiving care as measured by the CCHS 1.2. due to the limits imposed by the nature of using a survey that was designed for multiple purposes. Another limitation that Wilson and Rosenberg (2004) bring up in their study, which also applies here, concerns the possibility that interpretation of 'health care' may shape perceptions of access to services. For example, they note that specialized services tend to be concentrated in large metropolitan areas and generally are associated with much longer waiting times. They argue that individuals seeking specialized care might be more likely to report accessibility problems than someone who has no need for specialized services. Mental health services could be viewed as a specialized service, and therefore might be over represented in this study.

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