

***"Weathering a Hidden Storm": An Application of Andersen's Behavioral Model of Health, and Health Services Use for Those with Diagnosable Anxiety Disorder***

Sandy Lee Kovacs, BA (Honours Sociology)

Submitted in partial fulfillment of the requirements for  
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(Leisure Studies)

Supervisor: Glenn Stalker, PhD

Faculty of Applied Health Sciences, Brock University  
St. Catharines, Ontario

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Dedication

*This thesis is dedicated to the Loving*

*Memory*

*Of*

*Anna Maria Kovacs*

*July 31, 1943-October 27, 2010*



*"The pain will dull..*

*The anguish will subside*

*But your loving memory will never fade..."*

*I Love You Mom*

**Abstract**

***"Weathering a Hidden Storm": An Application of Andersen's Behavioral Model of Health, and Health Services Use for Those With Diagnosable Anxiety Disorder***

Research has primarily focused on depression and mood disorders, but little research has been devoted to an examination of mental health services use amongst those with diagnosable anxiety disorder (Wittchen et al., 2002; Bergeron et al., 2005). This study examined the possible predicting factors for mental health services utilization amongst those with identifiable anxiety disorder in the Canadian population. The methods used for this study was the application of Andersen's Behavioral Model of Health Services Use, where predisposing, need and enabling characteristics were regressed on the dependent variable of mental health services use. This study used the Canadian Community Health Survey (cycle 1.2: Mental Health and Well-Being) in a secondary data analysis. Several multiple logistics models predicted the likelihood to seek and use mental health services. Predisposing characteristics of gender and age, Enabling characteristics of education and geographical location, and those with co-occurring mood disorders were at the greatest increased likelihood to seek and use mental health services.

### Acknowledgements

The title of my thesis work was inspired by my mother, who experienced anxiety and panic disorder from the time she was a young child. She compared the constant panic, fear and trepidation as to having a raging storm going on inside. She would say *"on the outside, I seem calm and controlled, but inside, a massive maelstrom is going on..."* It was with these words that I decided to title my piece of work "Weathering a Hidden Storm". Anxiety is probably one of the most common but most misunderstood mental health disorders. Nobody can really describe the sensation of "going crazy" or "feeling like you could die" quite like the person experiencing the powerful and overwhelming sensations of a full-on panic attack. This work is for you Mom!

I would like to thank the following people for supporting me and seeing me through a very long and life changing process. It was these people who never let me lose sight of the importance of studies in Mental Health. A very big thank-you goes to my supervisor Dr. Glenn Stalker who never gave up on my efforts to finish this work. To my committee members Dr. Ann Duffy and Dr. John Cairney who stuck with me to ride out this "storm". To Associate Dean Mike Plyley who went above and beyond the call of duty and spoke on my behalf more times than I can count. To Beverly Minor who was always there when I needed extra words of encouragement. Thank you to the Office of Graduate Studies who consistently provided me with much needed extensions.

I would like to give a very special thank you to my father George Kovacs...*"you know I'm your favorite girl"*. Last and never least, a very big and very special thank you to my husband and life companion, Tomas Bajuk...*"if it wasn't for your strength, belief and love for me, and in me, I wouldn't be finishing this thesis or writing this acknowledgement today"*. I love you Babe.

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## Chapter One

### Introduction to Study

#### **Current Mental Health situation in Canada: An Overview**

Issues pertaining to mental health disorders in Canada have been gaining considerable attention with regards to the concerns associated with morbidity, health services utilization and quality of life (Gravel and Beland, 2005). According to the Canadian Mental Health Association (2007) mental disorder related disability will be one of the leading causes of lost-days of productivity and work-place health insurance claims. It is estimated that 1 in 5 Canadians will experience some form of a diagnosable mental health disorder during his or her life-time (Canadian Mental Health Association, 2009). With dissipating social stigma surrounding mental illness, mental health services have been decentralized from institutionalized care to community based mental health services (Horwitz, 2002; Latimer, 2005).

As a result, there has been a significant increase in mental health services use amongst Canadians (Stapleton et al., 2006) and with a documented prevalence rate of 5% those who have been diagnosed as having need are attempting to seek and use mental health services, although they still experience long wait lists or unavailability of mental

health services, resulting in unmet need (Nelson and Park, 2006). With regards to the Canadian population, it is still not very well understood as to whom will be most likely to seek and use mental health care services (Drapeau et al., 2005; Wu et al., 1999), especially amongst those who have been identified, or have been diagnosed as having a mental health disorder (Gravel & Beland, 2005).

### ***General Discussion of Andersen's Model***

In 1968, Ronald Andersen developed his Behavioral Model of Health Services Use as part of his doctoral dissertation. His model examined families' use of health care services in the United States, and through this, he proposed three distinct characteristics of predisposing, need and enabling factors. His initial model was simple and uncomplicated where the predisposing characteristics of age, gender, family size and ethnicity were believed to be the primary factors in assessing and predicting health services utilization.

Need characteristics were identified as factors which precipitated acknowledgement for health intervention. These need factors included family and community responses to those identified as having an illness in need of medical attention. Need characteristics were also defined, not

solely by health issues and severity of the diagnosed illness, but by the family's perceptions and health beliefs.

Enabling factors were comprised of socio-economic variables based upon the family unit and not on individual enabling factors. Originally, Andersen believed that families' access to health services utilization was predicated on the notion of family health care usage. As well, Andersen indicated that families would be more likely to seek care as long as the necessary services were available, and access to those services could be maintained with certain regularity.

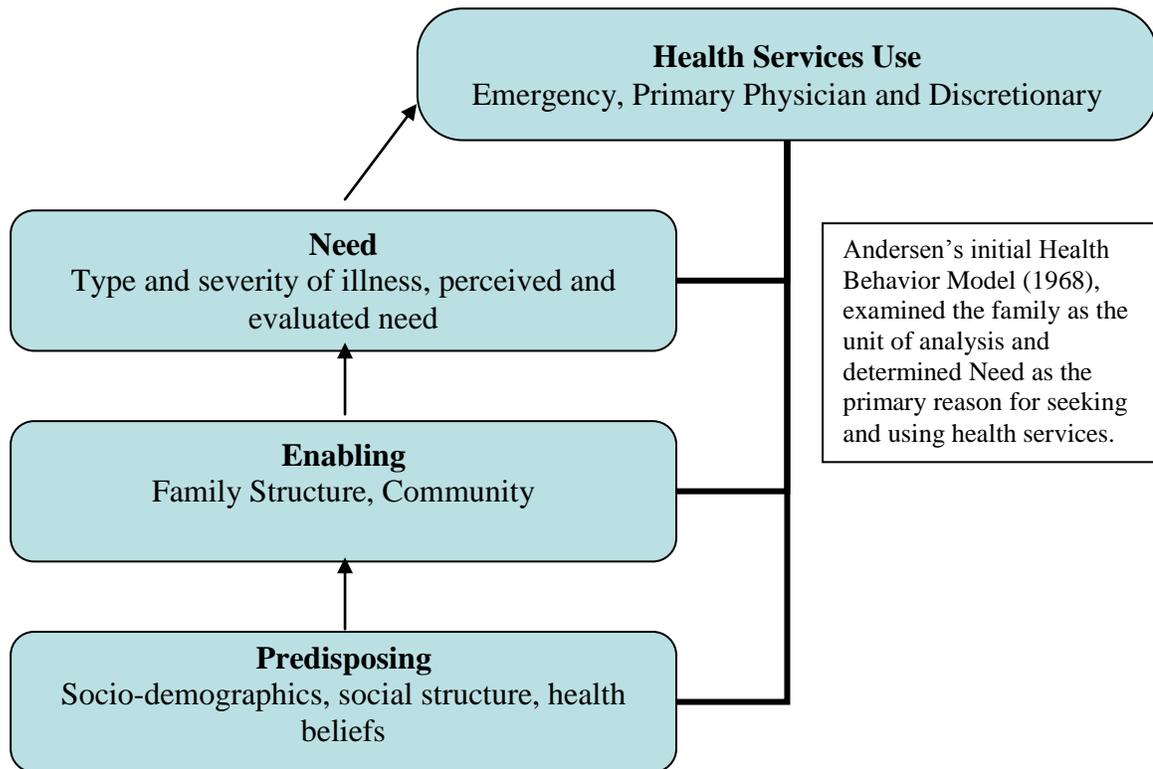
### ***History and Evolution of Andersen's Behavioral Model of Health Services Use***

#### **Family as the Health Consumer, 1968**

Andersen's initial model used the family as the unit of analysis, and was developed to explain how and why health services were sought and used by a family, based upon predisposing, enabling and illness factors. He used the family as his unit of analysis, in that, the family unit would be the most likely candidate to use, not only one type of service, but to seek and use multiple types of services over the course of individuals' life-spans.

According to Andersen, health services use could be viewed as a form of socially ordered behavior, where the use of health services is often dependent upon social structure, social class, and economic status (1968, p.3). This socially ordered behavior resulted from behaviors related to the prescription of social roles, and could be seen to be resultant in the actor's response to the threat of illness, either for oneself, or for his or her family member. In the study of health services use, several mediating factors have been identified as having the potential to indicate the presence of illness; the availability of health services provisions of care; and the individual seeking health care. Andersen (1968) believed that families would use health services based upon discretionary or non-discretionary choice. In other words, the type of services sought would be weighed against the type and severity of illness being experienced. Andersen further explained this by indicating that discretionary forms of health services use were based upon the family unit's particular views of the illness, the belief that the illness needed professional medical attention, and the ability to access the necessary services. Non-discretionary health services use was considered where a catastrophic, emergency based illness was acknowledged.

**Figure 1.1: Andersen's Initial 1968 Behavioral Model of Families Health Services Use**

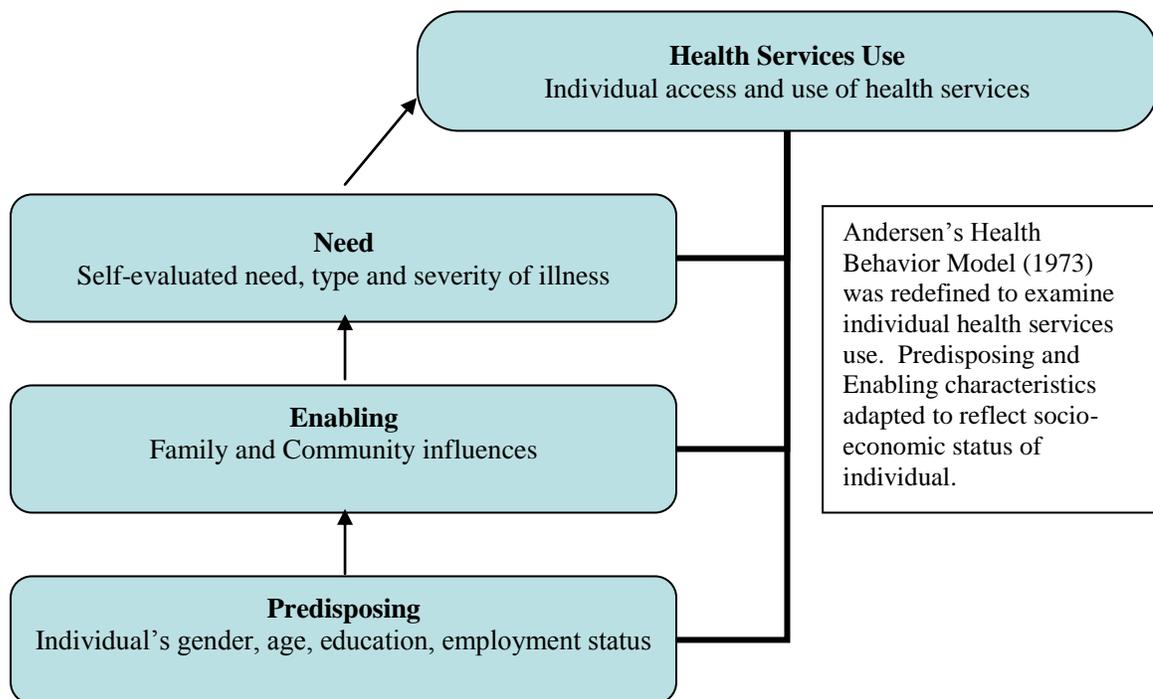


### **Individual as the Health Consumer, 1973**

Andersen collaborated with Newman and adapted the model to explain health services use at the individual level. They investigated individual determinants of health and applied Andersen's previous model. Predisposing factors were adjusted to reflect socio-economic status. Additionally, enabling factors were expanded upon, and included community and family influences. Need factors continued to examine the level of illness, type of illness, and the concept of perceived and evaluated need factors, as initially introduced by Andersen (1968), to address varying

forms of illness that could have a further influence on predisposing and enabling characteristics; as well, Andersen and Newman included concepts which further refined notions of objective and subjective need for health services, as based upon the individual's need and ability to seek and use health services.

**Figure 1.2: Andersen's Model of Individual Health Services Use**

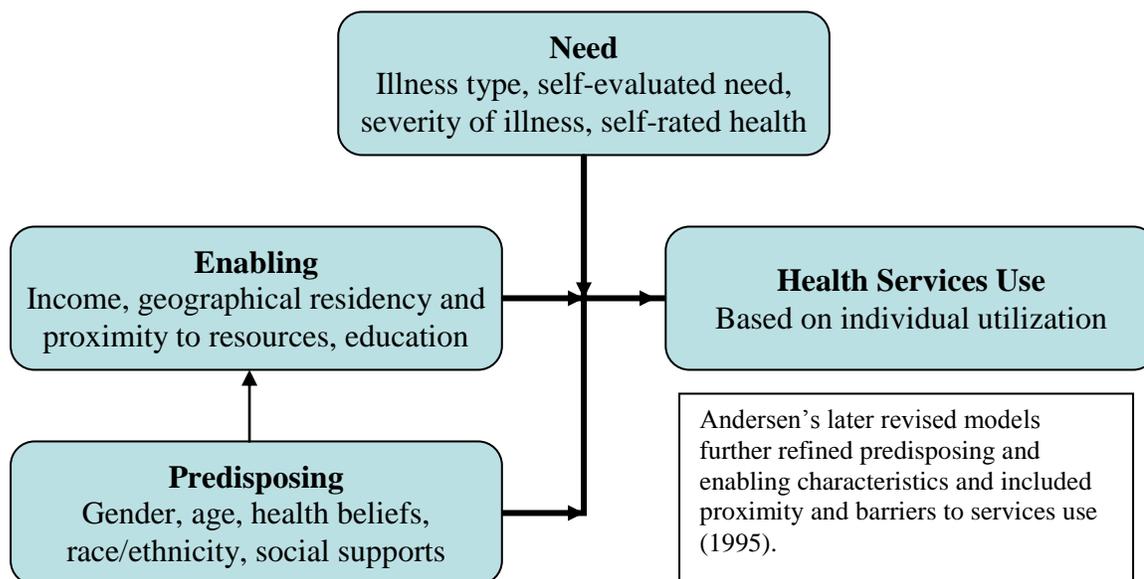


### **Revisited and Revised, 1995**

Andersen presented his revised Behavioral Model of Health Services Utilization. Here, he refined his concepts of predisposing, enabling and need factors. Predisposing factors defined individual characteristics associated with gender, age, race/ethnicity, and religiosity/spirituality.

Enabling factors were revised and became associated with socio-economic status of income, occupation, and education. At this time, geographical variables were adapted to the model and included factors associated with access to services, barriers to services, availability of services, and quality of services. Need characteristics included perceived and evaluated need, social support networks and influences, severity and type of illness, community perceptions regarding illness (i.e. stigmatization or supportive networks).

**Figure 1.3: Andersen's Revised Health Behavior Model (1995)**



### **The Shift of Predisposing, Enabling and Need Characteristics**

In his initial 1968 model, Andersen used the family as his unit of analysis with the assumption that most families

were hetero-normative in structure and was led by a male who provided primary financial resource. Andersen focused on investigating the entire family as a whole as it related to accessing physician care, emergency care and discretionary health services (i.e. dental, optometry). His 1968 findings suggested that need characteristics were primary factors in determining a family's decision to seek and use specific health services.

In Andersen's 1973 model, Andersen answered to the call of critics who indicated that all families were not homogenous and exemplary of a unified familial structure. As well, Andersen surmised that predisposing, enabling and need characteristics could be uniquely varied from one individual to the next, even within a familial setting. Predisposing characteristics of health beliefs and social structure were deconstructed to focus on the age, gender, personal health beliefs of the individual, and the individual's understanding and acceptance of illness. He readapted the enabling characteristics with the understanding that variables associated with health beliefs and social structures were not static, nor would these necessarily be shared by all within the same family. At that time, Andersen also added income, education, employment status, location of residency and the

availability of health resources based on the assumption that these enabling characteristics could also change over time and life course of each individual.

In 1995, Andersen redeveloped his model and re-categorized his predisposing, enabling and need characteristics to reflect shifting political and economic conditions, advancements in health and medical services, increasing availability of medical and health benefits, and the availability of a greater range of health services not previously accessible to the public (i.e. elective cosmetic surgery, complimentary alternative health practitioners). Here, Andersen introduced the notion of mutability or the ability for factors and variables to cross from predisposing, enabling and need characteristics. Andersen defined predisposing, enabling or need characteristics in terms of mutability, or the likelihood that the factors residing under these characteristics could change or cross-over from one characteristic to the other (1995, p.5). He defined predisposing characteristics of age, race/ethnicity and gender as low mutability as these factors were not likely to change, while the enabling characteristics of occupation, education, income, location of residence and access to health benefits as highly mutable as these can change greatly over the life course. As well, need

characteristics of health beliefs, type and severity of illness and interpersonal influencers (i.e. people around you who could point out state of illness or needing medical attention) were considered moderately mutable as these could influence or hinder access, as well be likely to gradually change in response to medical treatments, lifestyle changes or the after effects of previous illness. According to Andersen (1995) the concept of mutability was critical in the further development of his model, where shifting factors across characteristics would be also indicative of necessary policy changes, and could lead to better promoting health services that could bring about positive health behavior changes (p. 5).

### ***Summary of Andersen's Model***

Ronald Andersen's initial model of Behavioral Health Services Use (1968) sought to investigate the predicting factors that resulted in health services use for families. Initially, he sought to explain the types of services families sought and examined access and utilization of primary health care practitioners, emergency room physicians and dentists, where he postulated that health care services use could be predicated on three primary characteristics: predisposing, enabling and need variables (1968).

His redefined and developed later models best described the potential relationships between health care users and the services being sought (Andersen & Newman, 1973; Andersen, 1995). Andersen (1968) originally found that need was the greatest predictor of health services utilization, especially when it came to accessing non-discretionary emergency and hospital services. In fact, need was such a strong predictor, that even predisposing and enabling variables had little effect once he controlled for them in his model. Over the course of four decades, Andersen's model has been continuously applied to a variety of research topics in health care and mental health study. This has led to some significant changes to his Behavioral Model of Health Services Use, especially where the factors residing within his characteristics were concerned.

***Application of Andersen's Model in Studies  
Concerning Mental Health Services Use***

Others have indicated the usefulness in using Andersen's model to examine need, enabling and predisposing characteristics associated with health services utilization (Phillips et al., 2002; Wolinsky, 1978, 1983). In many of these studies, enabling and predisposing factors were often used as the explanatory variable in the analysis of health services use, and were meant to predict the likelihood of

services use across gender, age or income status (Cairney et al., 2004; Drapeau et al., 2005; Goodwin & Andersen, 2001; Phillips et al., 2002).

Recent studies have employed Andersen's model to examine mental health services use and to determine potential predicting factors, which may precipitate an increased likelihood for individuals to seek and use mental health services (Cairney et al., 2004; Drapeau et al., 2005; Goodwin & Andersen, 2002). A Canadian based study (Drapeau et al., 2005) applied Andersen's revised model to investigate predisposing factors associated with mental health services use amongst those in the Canadian population. Drapeau and associates (2005) discovered that women and men (who reported low income and education) were most likely to seek and use mental health services. Drapeau and associates (2005) further indicated that, not only were females more likely than males to seek and use mental health services, older women with higher levels of education were the most likely to seek and use services as compared to younger, unemployed males.

Other studies conducted, which researched mental health services use, examined mental health issues related to depression and other mood disorders. Of these studies, the mental health disorders most investigated were related

to mood disorders and substance dependence (McWilliams, Cox, Enns & Clara, 2006; Rhodes, Bethell & Bondy, 2006; Wang, 2004).

### ***Research Rationale and Objectives***

Few studies have been devoted to investigating mental health services utilization amongst those with anxiety disorders (Cotterchio & Kreiger, 2002; Foot & Koszycki, 2004; Frise, Steingart, Sloan, Wittchen, 2002; Goodwin & Andersen, 2002). For example, research conducted by Goodwin & Andersen (2002) specifically examined the effect of predisposing, need and enabling characteristics to determine the correlates associated with treatment for panic attacks. It was discovered that need (severity of panic attack episode), age, marital status and availability of mental health practitioners were the greatest predictors for mental health services use.

Taking into account Andersen's Health Behavior Model, can this model be used to explain mental health services utilization for those identified as having a diagnosable anxiety disorder? Moreover, can this model be used to investigate and explain mental health services utilization as it relates to the characteristics of predisposing, enabling and need factors?

## Chapter Two

### Review of the Literature

#### **Mental Health Services Utilization and Access**

Many past studies have attempted to investigate the factors associated with mental health services use in the Canadian population (Frise et al., 2002; Patten, 2004; Razzano, Cook, Hamilton, Hughes & Matthews, 2006), while other studies have attempted to define characteristics associated with those who have need, but have not sought or used services (Cairney, Boyle, Lipman & Racine, 2004; Nelson and Park, 2006). For example, it has been reported that those between the ages of 15 to 24 years, only 25% of those identified as having diagnosable need sought and used mental health services (Bergeron et al., 2005; Nelson and Park, 2006).

#### **Mental Health Services Use: Predisposing, Need and Enabling Characteristics**

This model was developed to examine the factors associated with predicting, whether or not, an individual will seek and use health services. The Behavioral Model of Health Services Use is comprised of three major characteristics, and includes: *predisposing* characteristics (e.g. age, gender and ethnicity), *need* characteristics

(e.g. severity of diagnosable illness, acknowledgement of health issues, familial influence, professional influence and self-perceived desire), and *enabling* characteristics (e.g. income, education, occupation, and availability of services, regularity of attaining health services).

In terms of mental health services utilization, several studies have used Andersen's model to investigate the predictive factors for those who seek and use mental health services to treat their mental health disorders. The purpose and potential outcomes of some of these studies is to determine the greatest factors associated with seeking and using mental health services (Bergeron, Poirier, Fournier, Roberge & Barrette, 2005; Cairney et al., 2004; Drapeau et al., 2005; Goodwin & Andersen, 2002). In almost all of these studies, it was found that apart from need (Goodwin & Andersen, 2002), gender was the greatest predicting factor when it came to mental health services use (Bergeron et al., 2005; Drapeau et al., 2005; Foot & Koszycki, 2004; Goodwin & Andersen, 2002). When it comes to the issue of gender and mental health services, women are most likely to be diagnosed as experiencing a diagnosable mental health disorder, and consequently, are most likely to seek and use treatments to address their disorders (Foot & Koszycki, 2004).

### **Predisposing**

Many previous studies have focused upon Andersen's predisposing characteristics when attempting to predict factors associated with health and mental health services use (Cairney et al., 2004; Goodwin & Andersen, 2002). As such, predisposing factors of age, gender, ethnicity and health beliefs have been included as controlled variables or factors in studies, which have employed Andersen's health behavioral model (Phillips et al., 1998).

Wolinsky's earlier work (1978) assessed the effects of predisposing, enabling and illness characteristics on health services use. Wolinsky (1978) focused on individual determinants of health to develop a causal model, which could explain health services utilization in the general population. He found that of those using a great number of services, also reported greater number of days of disability and increased effort to complete activities of daily living. Of those, he also found that chronic illnesses had a major influence over the types of health services being sought and used.

### ***Use Issues Concerning Age***

Recent literature has demonstrated that older Canadians were more likely to seek and use more mental

health services than younger persons (Wu et al., 1999). Additionally, it has also been found that as one ages, the likelihood to seek and use mental health services steadily increases (Sareen et al., 2005). Research conducted by Vanheusden and associates (2008) investigated mental health services use by young adults between the ages of 19 to 32 years. After controlling for need, it was found that younger females (aged 19-25 years) who were economically disadvantaged or undereducated were seen to be representative of those with the greatest need.

#### ***Use Issues Concerning Race/ethnicity***

Recent reports indicated that immigrants in Canada do not seek and use mental health services as readily as their Canadian-born, Caucasian counterparts (Whitley, Kirmayer & Groleau, 2006). A current Canadian study examined the potential reluctance for immigrants and visible minorities to use mental health services in Vancouver (Ganesan & Janze, 2005). This study found that immigrants and visible minorities are less likely to use mental health services due to cultural beliefs associated with mental health disorders, stigma related to mental illness and language barriers (Ganesan & Janze, 2005).

### ***Influence of Health Beliefs and Perceived Severity***

Andersen (1968, 1995) indicated that health beliefs had a major predisposing effect on, whether or not, an individual would seek and access health services. Andersen also indicated that health beliefs influenced an individual's perception of the potential efficacy and benefits of seeking and receiving health care. In terms of mental health services, social stigma and discrimination regarding mental illnesses and disorders still exists (Phelan & Link, 2004). This stigma often results in an individual's reluctance to acknowledge a potential mental disorder and to seek help.

Perceptions in severity of illness are also associated with shaping an individual's health beliefs (Bergeron et al., 2005; Goodwin & Andersen, 2002). Sareen and associates (2005) conducted a study using the Canadian Community Health Survey to investigate mental health services use and help seeking behaviors. They indicated several potential factors associated with the likelihood of reporting higher than average self-reports of illness severity.

Furthermore, Sareen and associates (2005) concluded that individuals, who had more than two chronic health conditions often reported greater levels of self-perceived,

stress, and were also more likely to report higher levels of perceived illness severity. This increased self-perception in illness severity was believed to also be associated with an increase in one's probability of seeking mental health services within a 12-month period.

### **Enabling**

Enabling characteristics have been defined as factors which can either enhance or inhibit access and continuation of health care. In terms of mental health, issues that pertained to income, education, and occupational status, geographical location to services, availability and barriers to services influenced whether or not an individual would seek access and continued use of mental health services.

#### ***Geographic Location: Issues Pertaining to Access and Barriers to Services***

Phillips and associates (1998) went beyond the dichotomy of urban and rural location of health resources; they also investigated how health services could be concentrated into more populated urban center, thus impacting the ability of an individual to access health services. For example, it was reported that some health services could be located in a very up-scale area of a metropolis, but individuals living far distances away from

these areas may not have the means to access these health services because of lack of transportation.

### ***Provider Related Resources and Services***

Provider-related variables had been long over-looked and included factors pertaining to regularity in receiving care, expertise and medical knowledge of the providing practitioner, and perceived usefulness of health services received. Both additional variables were seen as influencing and supporting other enabling factors of the health care consumer (Phillips et al., 1998; Nelson & Park, 2006).

As Phillips and associates (1998) have asserted, provider-related variables were considered to be strong enabling characteristics, which influenced whether individuals were able to continue to receive and maintain care. Provider-related variables took into account where care was provided; how it was provided and who provided it. In their study, they also examined how practitioner gender, belief system and relationship between practitioner and patient directly affected access to service.

### ***Education***

According to Drapeau and Associates (2005), education was a strong predictive enabling factors associated with

mental health services access. With regards to education, it was seen that those most likely to seek and use mental health services has a minimum of some post-secondary education; albeit college or some university. As well, it was demonstrated that those with higher levels of educational background might have been more informed of current mental health issues and appropriate forms of treatment (Cook et al., 2006).

### ***Income***

Although the Canadian health care system is based upon the Principles of Universal Health Care Insurance (i.e. universality, portability, comprehensiveness, and administration), provisions related to mental health care services are not the same as for access to emergency/catastrophic care or primary physician care. Some mental health services are covered by provincial health care but are limited to psychiatric assessment and in-patient hospital care (Clarke, 2004).

As for consumers in need of mental health services, income is strongly associated with access to these services, especially professional consultations with psychologists, social workers and therapists in an out-patient setting. This often affects an individual's ability

to pay for mental health services and can directly influence whether an individual will be able to access and maintain mental health care (Shi and Stevens, 2005).

According to Shi and Stevens (2005) those from low-income households were less likely to receive needed mental health care, and delayed seeking basic medical attention or filling a prescription for other physical ailments; with this mentioned, those of low-income status might not even have the resources or ability to seek and receive basic health care, let alone, seek 'more expensive' services for mental health issues.

As well, Wolinsky and colleagues (1983) suggested that differences in income resulted in disparities in accessing and using health services. For example, higher income individuals would see a greater need for preventive measures, and would more likely to seek these services (e.g. mammography) than lower income individuals, who were more likely to rely on intervention measures or emergency/catastrophic care (e.g. emergency room visits to physicians for immediate health crisis).

### ***Occupation***

Several studies have focused on the links between mental health and occupational position, and have examined

such work-related issues as: stress, anxiety disorders, depression, substance abuse and addiction, deleterious effects of workplace violence and harassment, and suicide on a national and global perspective (deVries et al., 2003; Wilhelm et al., 2004). As well, it has also been noted that individuals in varying fields of employment and occupation can be more likely to seek and use mental health services (Weber, Davis & Sebastian, 2002). To illustrate this, researchers, Dewa & Lin (2000), examined the links between lost work days and decreased days of productivity as implicated by chronic pain, mental illness or as a combination of both conditions.

The researchers used data from the 1990/91 Mental Health Supplement of the Ontario Health Survey (N=4225), and analyzed cases, excluding those who were unemployed (Dewa & Lin, 2000, p.42). These researchers considered fourteen different levels of occupation, which ranged from highly educated professionals to unskilled manual labourers, to explore as to which occupational level experienced the greatest loss of days of work or days of decreased productivity and increased psychological effort.

After controlling for age and gender, Dewa & Lin (2000) discovered that skilled technicians and unskilled manual labourers demonstrated the greatest amount of lost

work days and decreased productivity due to mental health issues. As well, those in middle management positions and skilled technicians were more likely to have reported using mental health services in comparison to unskilled labourers or highly educated professionals. However, they also reported that workers in professional occupational groups reported the highest level of mental and emotional stress in their jobs, but were most likely to continue working even if experiencing depressive states or anxiety.

Drapeau and associates (2005) have indicated in their study that those who were unemployed were more likely than those who were employed full-time to experience mental health issues, and seek treatment. Additionally, women who were either employed full-time or part-time were also much more likely to seek and use mental health services, than men of all age groupings and employment status.

### ***Benefits of Physical Activity and Leisure***

Current research has demonstrated the positive beneficial effects that physical activity and leisure has on diminishing the severity of anxiety symptoms (Goodwin, 2003; Jorm, Christensen, Griffiths, Parslow, Rodgers & Blewitt, 2004; Strathopoulou, Powers, Berry, Smits & Otto, 2006). Additionally, research has further indicated that

males, who reported engaging in regular physical activity, were significantly less likely to be identified as having a diagnosable anxiety disorder, as compared to females who did not report engaging in regular physical or leisure activities (Goodwin, 2003).

It is also believed that engaging in physical or leisure activity assists in the increased production of monoamine transmitters, which then inhibits the continuation of the negative feed-back loop associated with the onset of panic attacks or symptomatic behaviours associated with anxiety disorders (Jorm et al., 2004; Strathopoulou et al., 2006).

According to these studies, physical activity may lessen the severity of anxiety disorders. This lessened severity can then be seen to decrease the likelihood that an individual will experience symptoms related to anxiety disorder, and therefore, be less likely to seek and use mental health services. Moreover, Goodwin (2003) also indicated that males reported the greatest engagement in physical activity, and that females reported the least engagement of physical activity based upon the assumption that women might not engage in physical activity due to a lack of time and involvement with double-duty roles (i.e. holding responsibilities with child-rearing, career and

household duties), which may inhibit women from participating in physical or leisure endeavors (Goodwin et al., 2003).

### **Need**

Need characteristics can be considered as factors that lie within the individual, which can enhance or hinder an individual's decisions and actions, to whether or not, seek and use health services. Need characteristics may include level and severity of illness, personal health beliefs and behaviors, and the individual's acknowledgement that the illness is having considerable impact upon his or her quality of life.

In terms of Talcott Parson's notion of the sick role (Parsons, 1951), any illnesses, which can be seen as having a direct influence, which prevent the ill person from interacting and contributing to society, can only be tolerated for a brief period of time. Based upon the sick role, it is up to the individual to seek adequate and professional medical interventions so that the individual may overcome the illness, and reintegrate within society.

In the case of need, the level of severity, and even the nature of the disease itself is cause to seek and use health services. With regards to mental health disorders, very little previous research has directly investigated

mental health disorders as being indicative of need. However, some recent studies (Fleet, Lavoie, Martel, Dupuis, Marchand & Beitman, 2003; Gavrilovic, Schutzwahl, Fazel & Priebe, 2005) have examined mental health services use by those who had been identified as experiencing the effects of post-traumatic stress disorder.

In these studies, it was determined that those who sought and received medical attention for their disorder did so as a result of experiencing physiological effects of post-traumatic stress disorder (i.e. primarily chest pains or severe headaches). It was concluded that an acknowledged need for mental health intervention was not actualized unless the patient experienced symptoms associated with immediate danger to health or life, which was also associated with a great disruption in the individual's quality of life and normal social interactions.

When it comes to the characteristic of need, often mental health symptoms do not readily cause disruptions in one's life or livelihood. However, if the symptoms increasingly progress to the point of disruption, then an individual may seek and use mental health services (Goodwin & Andersen, 2002).

### **Presence of Other Mental Health Disorders**

Many previous studies have linked the presence of multiple mental health diagnosis to an increased likelihood that one would seek and use mental health services (Currie et al., 2005; Katz et al., 1997; Nelson & Park, 2006). A study by Wu and associates (1999) investigated the co-morbidity and increased possibility of use, for those with a dual diagnosis for psychiatric disorder with substance abuse, and found that co-morbidity drastically increases the likelihood for individuals to seek and use mental health care services.

Additional studies have further examined the impact that major depression and mood disorder, coupled with a dual diagnosis of substance depression and anxiety disorder, have on mitigating the use of mental health services, and discovered that dual diagnosis does increase the likelihood for individuals to seek care, especially with the presence of mood disorder with diagnosable anxiety and panic disorder (Currie et al., 2005; Rhodes et al., 2006).

### **Diagnostic and Statistical Manual of Mental Disorders: Defining and Measuring Anxiety Disorders**

Anxiety disorder is classified as a broad spectrum disorder in the Diagnostic and Statistical Manual of Mental

Disorders (DSM-IV-TR, 2004). Anxiety disorders may include multiple expressions and symptoms, which may range from panic attacks to specific phobias and obsessive compulsive disorder. As well, those diagnosed can be diagnosed with one axis of the disorder, or may be diagnosed as having more than any one classification of anxiety disorder (i.e. panic attack with social phobia; obsessive compulsive disorder with the presence of post traumatic stress disorder).

### ***Anxiety Disorder Diagnostic Measure***

According to the DSM-IV (2004), anxiety disorders are conditions, which may include, but are not limited to the following:

***Panic attacks-*** where individuals experience a discrete period marked by the sudden onset on intense apprehension, fearfulness, terror or a sensation of impending 'doom'. Individuals reporting physical symptoms of shortness of breath, palpitations, chest pain or discomfort, sensations of smothering or choking, a sense of depersonalization or de-realization, and the sensation of 'losing control or going crazy'.

***Agoraphobia-***is related to an intense fear of apprehension for the sufferer to be exposed to situations where an imminent attack might occur. The person

experiencing these symptoms will avoid anxiety provoking situations where escape, from threatening or embarrassing, situations may not be possible.

***Specific phobia***-fear or anxiety related to a specified object, individual or environment. An individual often understands that his or her fear may be irrational, but are unable to control any resultant anxiety towards exposure to the specifically feared stimuli.

***Social Phobia***- Anxiety provoked by specified social events or performances, social phobia may occur, co-morbidly, with agoraphobia and may lead to avoidance behaviors.

***Obsessive-Compulsive Disorder***- Obsessive-compulsive disorder is considered to have two distinct manifestations of behaviors, and is marked by an obsession toward repetitive thoughts or feelings, which produces anxiety, while compulsions are acted out and are felt to help neutralize the anxiety symptoms being experienced.

***Posttraumatic Stress Disorder***-Anxiety related to the effects experienced from a traumatic life event. Those experiencing PTSD, will often re-experience (or re-live) the event through flash-backs, and are accompanied by increased physical and mental arousal and hyper vigilance related to the traumatic event.

**Acute Stress Disorder**-These symptoms are related to posttraumatic stress disorder but occur immediately following traumatic event (i.e. following a serious car accident).

**Generalized Anxiety Disorder**- Generalized anxiety disorder is marked by persistent and excessive anxiety and worry, which has continued for a six month period. People often report symptoms of heightened or exacerbated worries, which others may find minor or incidental.

Symptoms related to anxiety disorder may emerge during late adolescence and may continue well into adulthood. However, some individuals have been known to experience anxiety disorders during adolescence, followed by a period of remission, and a reoccurrence during adulthood, especially after a traumatic event or prolonged stress.

Diagnosis of anxiety disorder, and related characteristics, follow DSM-IV adherence and include that the symptoms be present for a specified period of time (2 weeks to 6 months) and report experiencing four or more of the documented symptoms.

**Mental Health Services Utilization: Those with Anxiety Disorder**

Recent research has indicated that anxiety disorders are wholly under or misdiagnosed in the general population

(Foot & Koszycki, 2004; Goodwin & Andersen, 2002; Wittchen, 2002). Of those who eventually become clinically diagnosed by the psychiatrists or psychologists, most are women and older persons (Wittchen, 2002). Prior to being identified and diagnosed, many of those who have anxiety disorder may have suffered through the symptoms of anxiety disorders anywhere from five to ten years (Wittchen, 2002, p.162). According to work conducted by Wittchen (2002), it was found that individuals experiencing anxiety related disorders and general anxiety disorder (GAD) were more likely to be females, who had reported experiencing these symptoms anywhere from five to ten years before receiving a successful diagnosis (Wittchen, 2002). Additionally, those experiencing symptoms arising from anxiety and generalized anxiety disorder, were the most frequent users of primary health care practitioners, and experienced great social and economic burdens due to the debilitating effects of anxiety disorder upon their lives.

In summary, Andersen's model has been used extensively to investigate mental health services use, where predisposing, enabling and need characteristics were seen as highly influential in enhancing or hindering the ability to seek and use mental health services, especially for those with anxiety disorder.

## **Chapter Three**

### **Methods**

#### **Introduction**

The Canadian Community Health Survey (CCHS) cycle 1.2: Mental Health and Well-being, was collected by Statistics Canada in 2002, and published publicly in 2003. This survey is cross-sectional in design and focuses on data collection and information concerning the mental health and well-being of the general Canadian population.

The CCHS has two components, the Public-use data set, which does not contain sensitive respondent information and the restricted-use Master data files. For the Public-use data set, researchers can download desired variables directly through the Statistics Canada website. For access to the Restricted-use data set, researchers must submit an application outlining all primary research objectives and intentions related to potential data treatment, directly to the Research Data Centre (RDC) program as a prior requirement to access and use Statistics Canada Master data files. This thesis study utilized the Restricted-use data set for the purpose of utilizing variables that were not available in the Public-use data set.

### **Population Characteristics and Sampling Frame**

The sampling frame, for the CCHS cycle 1.2 consists of 36, 984 randomly selected respondents from across Canada. Respondents vary in age from 15 years to 80+ years. Respondents represent both males and females, and are also representative of individuals from all socio-economic and ethno-cultural backgrounds. The respondents selected for the CCHS cycle 1.2 represent individuals from each of the 10 provinces, but do not include individuals from the territories. Individuals living in institutional settings, including those who are incarcerated, and individuals living on First Nations reserves were also not included in this survey, as these populations are considered to be specialized and homogenous and may not support selection in random probability. Normally, individuals enlisted as full-time members of the Canadian Forces are also not included in survey sampling. However, the CCHS has compiled a supplementary survey for only those enlisted in the Canadian Forces. This survey was produced by Statistics Canada and was made public in September 2004, and is available as a restricted-use data set. Application to use the Canadian Forces data set is the same as applying to access the Master data set on the generalizable Canadian population.

**Target Population**

The target population selected was derived from CCHS cycle 1.2 and was exclusive of respondents who had been identified as having the potential for diagnosable anxiety disorder. The extraction of this population was conducted using the algorithm variables available in the CCHS restricted-use data set. The algorithms of interest involved those pertaining to having anxiety disorder symptoms within the twelve months prior to the CCHS interview. The algorithms for each category of anxiety disorder symptoms correspond to the individual meeting the Diagnostic and Statistical Manual (DSM-IV-TR, 2004) diagnosis criteria, and relevant severity, or caseness of having an anxiety disorder.

**Measurements and Inclusion Criteria**

In the Canadian Community Health Survey, cycle 1.2, panic attack, agoraphobia and social anxiety have been used to construct the overall variable for diagnosable anxiety disorder. Generalized-anxiety disorder, specific phobias, obsessive-compulsive disorder and posttraumatic stress disorder are not measured in this survey. The CCHS also includes co-morbidity, or poly-mental disorder variables, which takes into account any combination of mood disorders,

anxiety disorders, or substance dependence that has been reported by the respondent, and which has occurred during the respondent's life-time and, within 12-months prior to the interview.

The CCHS cycle 1.2 uses the World Health Organization Composite International Diagnostic Interview (CIDI) questionnaire schedule as a means to identify and select individuals who can be considered diagnosable according to diagnosis criteria of the DSM-IV. The first question is used as a screener question, where the respondent is asked if he or she has ever had experience with feeling a specific way, with regards to inquiry about a particular mental disorder. If the respondent replies positively, the respondent is asked a series of symptom questions. The questions closely follow the symptomology criteria in the DSM-IV-TR and instrumentation constructs of the CIDI. Respondents must answer positively to a clinically established number of symptoms, as indicated in the DSM-IV, before they could continue onto questions regarding criterion qualification.

**Canadian Community Health Survey  
Questionnaire and Inclusion Criteria**

Inclusion criteria required that respondents report positively on two initial screener questions regarding *"during your life, have you ever had an attack of fear or panic when all of a sudden you felt very frightened, anxious or uneasy?"*, and *"have you ever had an attack when all of a sudden, you became very uncomfortable, you either became short of breath, dizzy, nauseous or your heart pounded, or you thought you might lose control, die or go crazy?"* If a respondent answered positively, the respondent then continued on with answering proceeding symptom questions in the module, which covered symptoms and experiences related to physiological, mental, emotional and social characteristics related to diagnosable anxiety disorder. If a respondent answered negatively to any screening symptomology questions, then the respondent ceased to answer any remaining questions and was removed from the screening module.

In the CCHS, criterion qualification is separated into two sub-sets of "life-time" diagnosis and "past 12 month" diagnosis. In order for respondents to be classified within the life-time diagnosis, respondents must have fulfilled symptom criteria for anxiety disorder, which had

been demonstrated to have occurred at least once over a life-time. The purpose of life-time criteria is to select those respondents who reported having experienced some, or all of the symptoms relating to anxiety disorder.

Life-time criterion is further sub-classified into categories A, B, C, D, and E. Each category refers to specific set of circumstances related to the diagnosis criteria of a particular mental disorder. Criterion A refers to those who meet diagnosis criteria of primary symptoms; criterion B/C refers to those who have experienced clinical disturbance or interference from the mental disorder; and criterion that include parts 1 and 2 refer to those respondents who have experienced both disturbance and interference from the mental disorder.

Afterwards, respondents were classified within the life-time algorithm, which refers to those respondents who either met or failed to meet DSM-IV diagnosis criteria. Only those who met life-time diagnosis criteria were further questioned regarding anxiety disorder symptoms that have occurred in the past 12 months prior to the interview.

To illustrate this, the anxiety related variable is based upon the World Mental Health CIDI, which uses a standardized instrument for assessing mental health; the CIDI is operationalized to be consistent with DSM-IV

criteria for mental disorder diagnosis. The variable is constructed from 30 dependent variables, and included criteria regarding life-time experiences with anxiety or panic, panic episodes in past 12 months, onset, recency, persistence, duration, and interference with social or occupational functioning. The purpose of the anxiety module was to define and classify those individuals who met the criteria for having potential for diagnosis of anxiety disorder.

Those respondents who reported experiencing 4 of the 9 symptoms related to anxiety were then further classified to the criteria of A (part 1 or part 2), C (part 1 or part 2), C (combined), E (absence of bereavement or bereavement lasting >6 months) and E (reported impairment, morbid perception of worthlessness, suicidal ideation, psychomotor retardation). Respondents had to have met life-time clinical diagnosis before they could be asked about further anxiety related symptoms occurring 12 months prior to the interview process. In the CCHS, the algorithm for life-time prevalence demonstrated that 1,397 respondents were identified as having diagnosable anxiety disorder. In the 12-month prevalence algorithm, 1,803 respondents were identified as having diagnosable anxiety disorder.

## **Variable Measures**

### ***Dependent Variable***

The dependent variable used pertained to "used mental health services". This variable included all those who answered to the following screener questions regarding types of mental health services used, and includes participant visits to seek mental health care from family physicians, psychiatrists, psychologists, mental health nurses, social workers, religious advisor or any other professional trained in mental health intervention. This dependent variable also referred to seeking and using any of the above mental health services in the previous 12 months leading up to the interview. This dependent variable was coded dichotomously, where having used services was coded as 1, and not having services was coded as 0.

### ***Independent Measures***

The independent, or predictor variables, were selected based upon current research pertaining to Andersen's Behavioural Model of Health Services Use. Predisposing characteristics included gender, age, marital status, and perceived social support measures. Enabling characteristics have been defined as elements related to an individual's ability to access and maintain use of health

services. These enabling characteristics consisted of geographical area, income, employment status, education, and physical activity levels.

Although, having identified the sub-population used in this analysis, three other need variables will also be used, which measured self-perceived physical health and self-perceived mental health status. Based upon previous literature, of those identified as having need, their meeting of diagnostic criteria implies potential professional evaluations for need; however, current literature indicates that there is a strong association between poor physical health or poor mental health self-perceptions, which can then, influence an individual's likelihood of seeking health services (Andersen, 1968, 1995; Fleet, 2003; Nelson & Park, 2006).

### **Predisposing**

**Gender:** Previous literature indicated that women are the greatest users of mental health services (Drapeau et al., 2005; Mosier et al., 2010; Vasiliadis et al., 2009). In this analysis, *females* were coded as 1 and *males* were coded 0 as the referent group, as females have been consistently focused on as the primary consumers of mental health services.

**Age:** Age is a continuous variable that has been collapsed and grouped into 20 year-interval categories, which included dummy categories of *15 to 35 years*, *36 to 55 years*, *56 to 75 years*, and *76+ years* of age, where *76+ years* of age was the referent category.

**Marital Status:** Marital status is a categorical variable and included such categories as *married*, *common-law*, *separated*, *divorced*, *widowed*, and *never-married/single*. The marital status variable was collapsed into three categories, where *married* and *common-law* were combined to create the new variable *In a relationship*. Those who reported *separated*, *divorced* or *widowed* had been categorized as *Had a previous relationship*, and those who reported *never married/single* was combined to create the new variable *No relationship*. According to previous research, being in an intimate or marital relationship strongly predicted a greater likelihood of seeking and using both health and mental health services (Andersen, 1968, 1995; Goodwin, 2003; Goodwin & Andersen, 2002; Scott et al., 2009; Wolinsky, 1983).

**Social Supports:** The perceived social support variable consists of four separate categories, which are *tangible* social supports (in relation to the level of physical

support an individual perceives to receive), *emotional/informational* supports (as it relates to the amount of emotional or informational support the individual receives), *affective supports* (if the individual is receiving personal affection from those around him or her), and *positive interactive social* supports (individual has healthy and meaningful relationships with others) (Nelson & Park, 2006).

These variables indicated if the respondent perceived to have received any of the above forms of social supports over a 12-month period. Each of these social support variables are continuous in nature and are based upon the criteria of the Medical Outcome Study (Statistics Canada, 2003: 1006). Each social support mechanism variable is based upon a score ranging from 0 to 32 for level of emotional/information supports, 0 to 16 for level of tangible or positive social supports received, and 0 to 12 for level of affective social supports received. These variables were included as the social support variables in my model as these are presented in the data set.

### **Enabling**

***Geographical Region:*** Geographical region was measured, both, by using the province variable and *urban* and *rural*

variable. Those living in denser population areas, and in urban settings, will have greater access to mental health services as compared to those who are more isolated in rural settings (Hauenstein et al., 2006). This variable was coded to reflect *urban* as 1 and *rural*, the referent, was coded 0.

As well, previous research has indicated that geographical differences can influence an individual's ability to access and use potential mental health services (Goodwin & Andersen, 2002; Hauenstein et al., 2006; Nelson & Park, 2006). All provinces were collapsed into 3 separate dummy-coded variables, where the *Atlantic* variable included New Brunswick, Prince Edward Island, Nova Scotia and New Foundland. The *Western* variable included British Columbia, Alberta, Manitoba and Saskatchewan, and *Quebec* was inclusive of itself; *Ontario* was the reference category.

**Physical activity:** The relationship of physical activity and anxiety disorder is demonstrated by a decrease in the severity and symptoms of panic attacks and incidence of generalized anxiety disorder (Goodwin, 2003; Jorm et al., 2004; Strathopoulou et al., 2006). The variable of physical activity is categorical and included dummy

variables that reflected *active, moderately active* and *inactive*, with *inactive* as the referent category.

**Income:** Since income is a strong predictor of mental health services utilization (Drapeau et al., 2005), and more importantly, those with lower income are more likely to seek and use mental health services (Drapeau et al., 2005; Goodwin, 2003; Peden, Rayens, Hall & Grant, 2005) the 5 level income adequacy variable was used and collapsed to reflect the following categories: *low income adequacy* (\$0-\$29,999), *middle income adequacy* (\$30,000-\$59,999) and *high income adequacy* (\$60,000-\$80,000+). The income adequacy variable measures the ability of the individual or family to afford the basic necessities of living (i.e. housing, food, clothing, transportation) and each range reflects the amount of money divided by each individual within the household.

**Employment Status:** Employment status has been linked to increased usage of mental health services, where those who were unemployed, used the greatest amount of mental health services (Drapeau et al., 2005). For this analysis, the job status variable was collapsed into 3 categories of *Employed Full-time* (those who have been working 28 hours or

more per week), *Employed Part-time* (working less than 28 hours per week), and those *Not in the Labour Force* (per Service Canada Employment Insurance Eligibility criteria). Those *Not in the Labour Force* included all individuals who could be classified as unemployed (those who had not worked in the prior 13 weeks leading up to the interview but who were looking for employment), individuals who were not working due to retirement, illness/injury, maternity/paternity leave or who are in school). Those *Employed Full-time* was the referent category.

**Education:** It has been demonstrated that those with higher levels of education are greater users of mental health services (Dewa & Lin, 2002). For this analysis, the 10-level education variable was used. The educational variable was dummy-coded to reflect those with *less than high-school, completed high-school* (grades 9 through 12/13), those who have completed *vocational and trade training* (completion of a general college, trade training or program certificate), and *college and university* (completion of an associates degree, undergraduate or graduate degree from a recognized post-secondary institution). The category, *less than high-school*, was assigned as the reference category.

## NEED

***Self-Rated Physical Health:*** Those who report poor self-perceived physical health are more likely to acknowledge greater need for health care intervention compared to those who report higher levels of physical health (Andersen, 1968; Wolinsky, 1978; Sareen et al., 2005). The variable of *self-rated physical health* is an adjectival scale where 0 indicates poor self-rated health and 5 indicates excellent self-rated health. This variable was maintained as a continuous variable.

***Self-Rated Mental Health:*** Much like self-rated physical health, *self-rated mental health* demonstrated similar effects, in which, those who reported poorer self-rated mental health were more likely to seek and use mental health services (Goodwin & Andersen, 2002). The *self-rated mental health* variables is also an adjectival scale where 0 indicates poor self-rating and 5 indicates excellent self-rating. This variable was maintained as a continuous variable.

### ***Other Mental Health Measures***

Previous research has demonstrated that individuals that have one diagnosable psychiatric disorder, often also have an additional identifiable and diagnosable disorder

(i.e. diagnosable anxiety with the presence of mood). This co-occurring condition has also been demonstrated in an increased likelihood for these individuals to seek and use mental health services (Currie et al., 2005; Frise et al., 2002; Wu et al., 1999). For the purpose of this study, the presence of other diagnosable disorders can be recognized as an additional need characteristic, in accordance to Andersen's model. The algorithm for those with a diagnosable mood disorder (12-month) and substance dependence (12-month) was included in this model and considered to reflect additional need measures. These two algorithms for *mood* disorder and *substance* dependence were coded to 1 to reflect those who had the presence for an additional diagnosable disorder.

### **Analytic Strategy**

This thesis study was conducted using secondary data analysis and employed the restricted-use data set to derive all the necessary variables. SPSS 19.0 was used to conduct all analyses. Below are the analysis procedures that were employed in this study. Those individuals who meet the DSM-IV diagnosis criteria algorithm will only be used in constructing the sub-population sample.

### ***Sample Characteristics***

Frequencies, sample size and descriptive statistics for means and standard deviations were calculated and reported for only those who had been identified as having a diagnosable anxiety disorder. All those cases with missing data were coded as system missing and were eliminated from the analysis.

### ***Multiple Logistic Regression Models***

Three separate multiple logistic regression models were conducted to predict whether or not an individual, identified as having need, would use mental health services. Model 1 tested the predictive effects of only the Predisposing characteristics on the dependent variable of mental health services use. Model 2 tested the predictive effects of the Enabling characteristics on the dependent variable, while controlling for predisposing characteristics. Model 3 tested the predictive effects of the Need factors on the dependent variable mental health services use, while controlling for all predisposing and enabling characteristics.

All data was weighted, using the weighting variables provided by Statistics Canada. This was to ensure generalizability and reliability of the results, as

weighting data provides each respondent a value that is representative of a given number of individuals in the general population, who would otherwise not be represented in the sample.

### ***Limitations of Data***

The caveat regarding the use of target populations rests upon notions of generalizability and validity. Since target populations represent those who are unique and can differ greatly from the general population, generalizations based upon results must be carefully considered, in that, results arising from the target population might not be applicable across other similar groups residing within different settings (Pagano & Gauvreau, 2000). In terms of validity, results from the target population may not hold consistent when compared to results arising from other sub-populations of differing geographic areas, cultures or even across the context of different time frames (Pagano & Gauvreau, 2000).

## Chapter Four

### Analysis and Results

#### **Introduction**

All subsequent analyses that involved the use of the restricted-use data set took place at the RDC data analysis centre, located at McMaster University, and took place during the time period of September 9, 2009 through October 18, 2010. SPSS 19.0 was used as the analytic tool to run these analyses. Due to the sensitive nature of the restricted-use data set, an application for access to the RDC was submitted February 11, 2008 and approval granted March 11, 2008.

The variables were selected using the Canadian Community Health Survey Data Dictionary (September, 2004). Each variable was reviewed prior to recoding to ensure accurate recoding on all response categories and missing cases. Logistic regression models were conducted by entering variables based upon Predisposing (Model 1), Enabling characteristics (Model 2), and Need variables (Model 3). All missing data was accounted for and removed prior to analyses and all analyses were conducted using the standardized weight variable that was provided with the extrapolation of the selected variables. Results and outputs generated by the analyses on the Restricted-use

data set were submitted to the assigned RDC analyst and reviewed prior to release, as per the Disclosure regulations of Statistics Canada. All results and outputs were examined for cell counts that fell below 5 responses per cell. The purpose of this procedure is to prevent the release of any identifiable information of participants and to ensure anonymity and confidentiality.

### **Sample Characteristics**

Twenty-seven variables, with seven referent categories, were used in the analyses and pertained to the main categories of predisposing, need and enabling characteristics. The dependent variable for 12-month Mental Health Services Use was binary and reflected 1=Yes and 0=No, in terms of previous mental health services utilization. Additionally, individuals identified as having a diagnosable anxiety disorder were specifically selected based upon the identifying symptoms of having panic attacks, panic disorder and anxiety disorder. Individuals with missing values were identified and removed from the sample.

Below, are the Sample Characteristics for the sample of the Restricted-use data set for all constructed variables used in the analyses.

**Table 1.2: Sample Characteristics for those with Identifiable Anxiety Disorder**

<b><i>Predisposing Characteristics (N=1,803)</i></b>	<b><i>Valid%</i></b>	<b><i>Mean</i></b>	<b><i>STDV</i></b>	<b><i>N</i></b>
<i>Gender:</i> Female	62.6			1128
Male†	37.4			675
<i>Age:</i> 15-35 yrs.	44.6			804
36-55 yrs.	42.5		2.96	767
56-75 yrs.	11.5			208
76 + yrs.†	1.3			24
<i>Relationship Status:</i> In a Relationship (married/common-law)	48.3			872
Had Previous Relationship (divorced/widowed)	15.7			283
Not in a Relationship† (single/never married)	35.9			647
<i>Social Support Mechanisms:</i>				
Tangible Social Support (MOS:0-16) <sup>a</sup>	100	12.07	3.99	1770
Emotional/Informational Social Support (MOS:0-32) <sup>a</sup>	100	24.02	7.34	1764
Positive Social Support (MOS:0-16) <sup>a</sup>	100	12.14	3.82	1771
Affective Social Support (MOS:0-12) <sup>a</sup>	100	9.62	2.96	1769
<hr/>				
<b><i>Enabling Characteristics (N=1,803)</i></b>	<b><i>Valid %</i></b>	<b><i>Mean</i></b>	<b><i>STDV</i></b>	<b><i>N</i></b>
<i>Geographic Location:</i> Urban	82.8			1494
Rural†	17.2			309
<i>Provincial Location:</i> Atlantic (NS, PEI, NF, NB)	8.5			154
Quebec	30.9			370
Western (BC, AL, SK, MN)	20.5			557
Ontario†	40.1			723
<i>Educational Attainment:</i> Less than High School†	27.7			499
Completed High School	31.1			560
Trade-Vocational	26.9			483
College-University	14.3			257
<i>Income Adequacy**:</i> Low (\$0,000-\$29,999)†	6.4			115
Middle (\$30,000-\$59,999)	29.0			523
High (\$60,000-\$80,000+)	57.0			1028
<i>Employment Status:</i> Employed Full time†	57.0			1015
Employed Part time	16.2			289
Not in Labour Force	26.8			499
<i>Physical Activity Levels:</i> Active	24.8			447
Moderately Active	26.2			473
Inactive†	49.0			884



In the generalizable Canadian population, it was estimated that 2,381,817 individuals sought and used mental health services within that 12 month period, regardless whether or not the individual had a diagnosable or present mental health disorder. It was also estimated that 9.4% of the generalizable Canadian population could have diagnosable anxiety disorder, in which 20.7% of these individuals sought and used mental health services to address their anxiety disorder. Within mood disorder, it was believed that 9.5% of the Canadian population could be identifiably diagnosed with mood disorder, and 9.6% could also be identifiably diagnosed with substance dependence. Of those, 55.6% of those with identifiable mood disorder and 23.9% of those with identifiable substance dependence sought and used services within twelve months leading up to the CCHS interview.

Those who had been identified as having a diagnosable anxiety disorder were selected using the algorithm variable of "any selected anxiety disorder", in which respondents could be found to have a diagnosable anxiety disorder that included agoraphobia, panic disorder and social phobia within a 12-month period. Males represented 37.4% (N=675) and females represented 62.6% (N=1128) of this sub-sample.

### **Logistic Models**

In the Canadian Community Health Survey 1.2: Mental Health and Well-being, respondents were categorized into groups which identified the respondents as having the potential to be diagnosed for panic attack, panic disorder and anxiety disorder. These individuals were included in an algorithm for diagnosable anxiety disorder and could be classified as either a 12 month diagnosis or life time diagnosis for any anxiety disorder. For the purpose of this study, all individuals identified as having a potentially diagnosable anxiety disorder, within 12 months leading up to the interview, were included in the sub-sample (N=1,803). 95% Confidence Interval (95% CI) values are given and refer to a normal sampling distribution where the cases in the population are expected to fall 1.96 standard deviations (STVD) on either side of the mean. This distribution will be expected to occur within the sample 95 out of 100 times.

#### ***Explanation of Model 1 (Predisposing Characteristics)***

Of this sub-sample, the Predisposing characteristics of *gender* was significant where females were 1.318(1.069-1.624 95% CI) times more likely than the referent category of males to seek and use mental health services. The only social support mechanism variable to remain a significant

predictor, was *positive social support* in that those reporting increasing social supports were .905 (.860-.952 95%CI) times less likely to seek and use mental health services. In the age variable, those in the 36 to 55 year age group were 4.092 (1.400-11.961 95%CI) more likely to seek and use services as compared to the referent category of 76+ years of age.

***Explanation of Model 2 (Enabling Characteristics)***

In the Enabling characteristics model, those living in the *Atlantic* provinces (New Brunswick, Prince Edward Island, Nova Scotia and New Foundland) were 1.498 (1.028-2.183 95% CI) times more likely to seek and use mental health services than individuals residing in Ontario. Those living in the *Western* provinces (British Columbia, Alberta, Manitoba and Saskatchewan) were 1.473 (1.158-1.873 95% CI) times more likely to seek and use services as compared to the referent province of *Ontario*. Living in *Quebec* did not demonstrate a significant predicting effect to seek and use mental health services, compared the Ontario. Additionally, no significant prediction was made with regards to individuals residing in either *urban* or *rural* locations.

With the educational attainment variable, individuals with *college and university* education were 2.153 (1.530-

3.028 95% CI) times more likely to seek and use mental health services. Those reporting *trade and vocational training* were 1.439(1.079-1.918 95% CI) times more likely to seek and use mental health services, and those with *completed high-school* education were 1.484(1.130-1.948 95% CI) times more likely to seek and use services in comparison to the referent category of those with less than high-school educational attainment. In the employment status variable, those who were *Not in the Labour Force* was the only significant predictor in that 1.321(1.003-1.740 95%CI) were more likely to seek and use mental health services, than those who were *Employed Full-time*.

#### ***Explanation of Model 3 (Need Variables)***

Those who reported as having increasing excellent mental health status were .655 (.577-.743 95% CI) times less likely to seek and use mental health services, as compared to those who scored lower on the self-reported mental health status scale. Those who were identified as also having the potential for mood disorder along with diagnosable anxiety disorder were 4.301(3.324-5.565 95% CI) times more likely to seek and use services; those with substance dependence were not significant.

**Table 2.1: Logistic Regression Tables on the sample of Those with Diagnosable Anxiety Disorder**

<i>Explanatory Variables</i>	<i>Model 1 OR (95% CI)</i>	<i>Model 2 OR (95% CI)</i>	<i>Model 3 OR (95% CI)</i>
<b>Predisposing Characteristics</b>			
<i>Gender:</i>			
Female	1.318 (1.069-1.624)**	1.295 (1.042-1.611)**	1.563 (1.222-2.000)***
Male†	----	----	----
<i>Age:</i>			
15-35 yrs.	2.827 (.954-8.380)	3.272 (1.081-9.901)*	2.240 (.704-7.123)
36-55 yrs.	4.092 (1.400-11.961)**	5.269 (1.767-15.710)**	3.842 (1.230-11.996)*
56-75 yrs.	2.782 (.925-8.371)	3.074 (1.014-9.322)*	2.256 (.708-7.189)
76 + yrs.†	----	----	----
<i>Relationship Status:</i>			
In a Relationship	.815 (.629-1.055)	.799 (.608-1.050)	.851 (.629-1.152)
Had Previous Relationship	1.039 (.737-1.463)	.958 (.671-1.368)	.945 (.639-1.399)
Never in a Relationship†	----	----	----
<i>Social Support Mechanisms:</i>			
Tangible S.S.	.969 (.935-1.004)	.980 (.945-1.016)	.990 (.950-1.031)
Emotional/Informational S.S.	1.022 (.998-1.047)	1.021 (.996-1.047)	1.032 (1.004-1.061)*
Positive S.S.	.905 (.860-.952)***	.915 (.869-.964)***	.966 (.912-1.024)
Affective S.S.	1.035 (.981-1.091)	1.017 (.963-1.074)	1.008 (.948-1.072)
<b>Enabling Characteristics</b>			
<i>Geographic Location:</i>			
Urban		1.077 (.814-1.424)	1.253 (.907-1.681)
Rural†	----	----	----
<i>Provincial Location:</i>			
Atlantic		1.498 (1.028-2.183)*	1.722 (1.140-2.602)**
Quebec		.847 (.641-1.120)	.932 (.686-1.268)
Western		1.473 (1.158-1.873)**	1.391 (1.065-1.816)**
Ontario†	----	----	----

**Table 2.1: Logistic Regressions on the sample of Those with Diagnosable Anxiety Disorder, continued**

<i>Explanatory Variables</i>	<i>Model 1 OR (95% CI)</i>	<i>Model 2 OR (95% CI)</i>	<i>Model 3 OR (95% CI)</i>
<i>Educational Attainment:</i>			
Less than High School†	----	----	----
Completed High School		1.484 (1.130-1.948)**	1.559 (1.154-2.105)**
Trade-Vocational		1.439 (1.079-1.918)*	1.520 (1.106-2.088)**
College-University		2.153 (1.530-3.028)***	2.621 (1.792-3.833)***
<i>Income Adequacy:</i>			
Low (\$0,000-\$29,999)	----	----	----
Middle (\$30,000-\$59,999)		1.287 (.918-1.805)	1.358 (.934-1.974)
High (\$60,000-\$80,000+)		.886 (.634-1.238)	1.019 (.704-1.475)
<i>Employment Status:</i>			
Employed Full-time†	----	----	----
Part-time		1.170 (.872-1.570)	1.361 (.988-1.876)
Not In Labour Force <sup>1</sup>		1.321 (1.003-1.740)*	1.213 (.893-1.648)
<i>Physical Activity Levels:</i>			
Active		1.064 (.827-1.369)	1.070 (.804-1.423)
Moderately Active		.863 (.677-1.101)	.940 (.718-1.230)
Inactive†	----	----	----
<b>Need Variables</b>			
Self-Rated Physical Health			.980 (.869-1.107)
Self-Rated Mental Health			.655 (.577-.743)***
Identifiable Mood Disorder			4.301 (3.324-5.565)***
Identifiable Substance Dependence			1.336 (.908-1.967)
<b>model N</b>	1803	1803	1803
<b>Pseudo R<sup>2</sup></b>	.054	.090	.282
<b>-2 Log Likelihood</b>	2296.822	2231.230	1923.005

† Referent category, \*p&lt;.05, \*\*p&lt;.005, \*\*\*p&lt;.0001

<sup>1</sup> Not in Labour Force reflects respondent who are not working due to unemployment, retirement, illness leave or who are not looking for work

### Summary

The results of this analysis demonstrated that of the Predisposing characteristics, gender remained a significant predictor for mental health services use and continued to increase in significance across the models (in Model 3, gender demonstrated a 1.563 (1.222-2.000 95%CI) times increased likelihood). Those in the 36-55 year age group remained significant across all models. The measure for Emotional/Informational social support became significant in Model 3 and demonstrated a 1.032 (1.004-1.061 95%CI) times increase, in seeking and using services, as reported levels of this social support measure increased.

Of the Enabling characteristics, those living in Atlantic Canada and in the Western provinces were more likely than those living in Ontario to seek and use services, while living in Quebec did not prove to be a significant predictor. Education was a major predictor in that increasing educational attainment was highly predictive of seeking and using mental health services across all models. In Model 3, there was an increased effect of education on the dependent variable where having completed high-school indicated a 1.559 (1.154-2.105 95%CI) increased likelihood to seek and use services, having trade or vocational training demonstrated a 1.520 (1.106-2.088 95%CI)

increase, and having college and university demonstrated a 2.621 (1.792-3.833 95%CI) increased likelihood to seek and use mental health services.

In terms of Need characteristics, those who could also have diagnosable mood disorder were significantly more likely to seek and use, while having possible diagnosable substance dependence was not a significant predictor. Alternately, having increasingly improved self-perceived mental health status demonstrated a decreased likelihood to seek and use mental health services.

Although this thesis study produced many interesting main effects, it should be noted that this study was conducted on a small sample of individuals. Moreover, with small specialized samples, these may be subject to greater sampling variability. Greater sampling variability may lead to larger standard errors and diminished statistical power to detect significance. The best manner to address this issue was to apply a weight variable to the data set so that generalizations, regarding the total Canadian population, could be made. Chapter Five is a discussion of these results arising from the multiple logistic regressions, and its applicability and generalizability toward the larger Canadian population.

## Chapter Five

### *Discussion*

#### **Introduction**

The purpose of this study was to determine potential predicting factors associated with mental health services use for those who had been identified as having a diagnosable anxiety disorder. Previous literature has demonstrated that females were more likely than males to seek and use mental health services to treat mental health disorders (Bergeron et al., 2005; Drapeau et al., 2005; Foot & Koszycki, 2004; Goodwin & Andersen, 2002; Wittchen, 2002; Wu et al., 1999). Furthermore, females were also more likely than males to be diagnosed with an anxiety disorder (Vasilidias et al., 2009). This may suggest greater need and use of mental health services among female out-patients (Armstrong & Khawaja, 2002; Lefebvre, Lesage, Toupin & Fournier, 1998; Rhodes, Goering, To & Williams, 2002; Simmonds & Whiffen, 2003; Wittchen, 2002).

Utilizing the Canadian Community Health Survey 1.2 (Mental Health and Well-being, 2003: cycle 1.2) several multiple logistic regression models were conducted based on Andersen's Behavioral Model of Health Services Use (1968, 1995) where predisposing, need and enabling characteristics could predict factors related to health services utilization

in a general population (Bergeron et al., 2005; Lefebvre, Lesage, Cyr, Toupin & Fournier, 1998; Phillips et al., 2002; Wolinsky, 1978, 1983).

### **Overview of Analysis**

The following is a discussion of the results of this study as it relates to predicting factors associated with predisposing, need and enabling characteristics, and is based upon an application of Andersen's Behavioral Model of Health Services Use (1968, 1995). All predisposing, need and enabling characteristics were regressed upon the dependent binary variable for mental health services use separately, which then created an overall model.

The predisposing factors of gender, age, relationship status, and social support measures (i.e. tangible social supports, positive social supports, emotional/informational social supports and affective social supports) were regressed upon the dependent binary variable of mental health services use to determine likely predisposing factors associated with mental health services use as it related to those who had been identified as having a diagnosable anxiety disorder.

Enabling characteristics included factors associated with income, geographic location within Canada (urban vs.

rural locale and provincial location), educational attainment, and employment status (comparing employed vs. unemployed and those working full-time) and level of physical activity (active, moderate and inactive).

Need factors were identified and defined in terms of self-perceived physical health and self-perceived mental health and were related to self-perceptions that might impact the recognition of having the potential for an anxiety disorder and the level of severity. As well, need factors also took into account the possibility of other mental health disorders occurring with anxiety. The belief is that this can also mitigate an increased possibility to seek and use mental health services (i.e. mood disorder, substance dependence).

### **Predisposing**

Predisposing characteristics were defined by Andersen (1968, 1995) as characteristics that resided with the individual and were primarily set and static. Predisposing characteristics can be seen as related to gender, age, ethnicity, health beliefs and religiosity. These factors were believed to have considerable implications when it came to determining factors associated with health services use, and were prominent in establishing variability in health

services use within a general population (Andersen, 1968, 1995; Goodwin & Andersen, 2002; Newman & Andersen, 1978).

### ***Gender and Use***

Consistent with findings in previous studies (Bergeron et al., 2005; Drapeau et al., 2005; Foot & Koszycki, 2004; Goodwin & Andersen, 2002), gender was seen as a major predicting factor. In this study, females were more likely, than males, to seek and use mental health services.

Previous studies indicated that women were the greatest seekers and users of mental health services, and moreover, women were also more likely to find these services through family physicians and general practitioners, while men categorically did not actively seek and use mental health services (Frise, Steingart, Sloan, Cotterchio & Kreiger, 2002; Halbreich & Kahn, 2007; Foot & Koszycki, 2004; Leaf & Bruce, 1987; Vasiliadis et al., 2009; Wittchen, 2002). As well, the literature indicated that the possible reasons for men's low usage of mental health services may be more likely explained by gender-based perceptions.

A study conducted by Scott and associates (2010) examined gender, marital status and the occurrence of anxiety, depression and substance dependence in a World Wide population sample (data collected by World Health

Organization). It was found that married women were more likely to experience the onset of anxiety or depression, while married men were more likely to be identified as having substance dependence. The authors found it interesting that females were more likely, than men, to be identified with anxiety disorder and linked this occurrence with the issues related to social role strain. The authors suggested that gender differences resulted in role strain and role constraints, where women were the primary caregivers, and as a result of burdens brought on by childcare, rearing and domestic duty, were more likely to demonstrate symptoms related to anxiety disorder. Men, on the other hand, did not participate with the same involvement in childcare and domestic duties and therefore did not seem to demonstrate symptoms related to having anxiety disorder (Scott et al., 2010, pp.1502-1503).

Current research has also suggested that male usage of mental health services usually occurred when men are residing in institutionalized settings (i.e. nursing homes, VA hospitals) (Blitz et al., 2005; Currie et al., 2005; Drapeau et al., 2005; Leaf & Bruce, 1987). Usually, institutionalized men are under psychiatric care for more severe cases of mental illness, and are therefore more likely to be tested and diagnosed with more acute forms of

anxiety, depression or other more serious forms of mental health disorder, than men living in the general population (Chatterjee et al., 2009).

A study conducted by Vasiliadis and colleagues (2009) investigated the determinants of outpatient mental health services use in the Canadian population. They found that men were less likely to seek and use family physicians or other mental health practitioners, but were more likely to seek the care of psychiatrists provided that the need characteristic of having reduced, or low, mental health status was reported. Vasiliadis and colleagues (2009) offered the explanation that public-based mental health campaigns are still geared toward attracting women and that sex-based barriers remain. These sex barriers only serve to further reinforce stereotypical gender based assumptions that mental health and health care is a 'female' issue.

Despite having similar rates for the presence of mental health disorders (Mosier et al., 2010; Vasiliadis et al., 2009) a deeper analysis that would directly investigate the non-usage of mental health services in men could prove useful. It could be because current mental health campaigns, which are primarily targeted toward women, are considered a deterrent to men. Also, the mental health community may not recognize mental health issues in men as

readily as it does in women (Chatterjee et al., 2009; Vasiliadis et al., 2009).

### **Age**

Those in the 36-55 year interval remained a significant predictor, and were more likely to seek and use mental health services in comparison to the referent interval of 76+ years. According to previous research, older women were four times more likely to seek and use mental health services, especially in the presence of depression or anxiety disorders symptoms, and co-morbidity amongst multiple mental disorders (Drapeau et al., 2005; Koo et al., 2005; Wittchen, 2002).

In this thesis study, younger individuals (15-35 years) and all others over the age of 56 years were not greater users of mental health services. A recent study conducted by Mosier and associates (2010) found that individuals 65-79 years and 80+ years of age had significantly lower rates for all mental health disorders than individuals 20-49 or 50-64 years of age. These researchers concluded that lower rates, for the presence of mental health disorders in seniors, also reflected a noted reduction in seeking and using services amongst the senior age ranges (Mosier et al., 2010).

It might be seen that individuals in the 36-55 year age range are more likely to be in careers or work fields that provide work-related benefits that include coverage for mental health services, while younger people and those in the retirement phase of life, may not have benefits that support access to mental health services (Daig et al., 2009; Vanheusden et al., 2008). It may be anticipated that there might exist an interaction between age and gender, especially if related to occurring within specific age ranges and where factors associated with income, employment status and work benefits might have a positive influence to seek and use services (Daig et al., 2009).

### ***Social Support Mechanisms***

In the case of the sample of those who had been identified as having a diagnosable anxiety disorder, those who reported receiving increasing levels of emotional/informational social supports were less likely to seek and use mental health services. According to previous research by Currie and associates (2005), social supports can minimize the potentially harmful effects of stress, and can even prevent some individuals from becoming ill. In terms of anxiety disorders, many of those who suffer from an anxiety disorder will often report low levels of social

support. Social supports can come from a variety of sources, and she asserted that social supports can include family, friends, colleagues, or members of a social group one belongs to (Currie et al., 2005).

Social supports depend on the social interactions one engages in, and the forum one has available in order to share mental, emotional, and everyday problems. Social supports have three main characteristics which include: feeling cared for and loved; believing that one is esteemed and valued; and that one has a sense of social belonging or cohesion within a social network (Clarke, 2004, p.156; Drapeau et al., 2005).

Cohen (2003) has also defined social support as a means to maintain health, and most importantly, a means to ensure mental and emotional stability. This is particularly important in the alleviation and even prevention of anxiety related disorders. Cohen (2003) believed that social supports, consisting of family, friends or community connections, can provide help in alleviating stressful responses that might contribute to anxiety related disorder and possible ill health.

### **Enabling Characteristics**

Enabling characteristics were defined as factors that resided externally, but implicitly with the individual. These were factors that were associated with the propensity to seek and use health services, and were also seen to change over the individual's life-time. These factors were defined by Andersen (1968, 1995) to include income, education, health insurance coverage and support, occupation and employment status, and proximity to health care services (Goodwin & Andersen, 2002).

### ***Education and Use***

The results in this study demonstrated that as education increased so too did the likelihood of seeking and using mental health services. Previous research supports this outcome, and is most directly seen in research conducted by Gavrilovic and colleagues (2005) where it was found that education was a strong predictor of mental health services use. Furthermore, Gavrilovic et al., (2005) study directly supports the findings in this study. Their study utilized Andersen's Behavioral Health Model and specifically focused on predicting the enabling characteristics for mental health services utilization on a sample of individuals that sought help after a traumatic event.

It was found that educational attainment had a direct influence on whether an individual would seek and use mental health services to assist in treating the presence of a mental health disorder. The work of Cook and associates (2006) examined mental health services use amongst heterosexual women and lesbians. It was found that individuals who were identified as having a mental health disorder (i.e. depressive episodes, anxiety and substance dependence) were more likely to seek and use mental health services, especially if they had a higher level of educational attainment.

Education is a major enabling characteristic in predicting mental health services, in that, those with higher levels of education may have greater awareness of the presence of mental health disorders; be less affected by social stigmatization; be able to better negotiate negative mental health labels and be more inclined to seek and use mental health services to address their mental health disorder (Vasiliadis et al., 2009).

### ***Provincial Location***

Individuals residing in the Atlantic and Western provinces were significantly more likely to seek and use mental health services than those residing in Quebec or in

Ontario. Past research has examined mental health services use amongst the provinces, while other studies have been conducted to examine mental health services utilization comparing Ontario and the United States (Latimer, 2005; Katz, Kessler, Frank, Leaf, Lin & Edlund, 1997; Starkes, Poulin & Kisely, 2005). A cross national study conducted by Katz et al., (1997) examined outpatient mental health services use between Ontarians and Americans. These authors found that self-rated mental health and the presence of diagnosable disorder were significant predictors in demonstrating that Ontarians (and moreover, Canadians) identified greater need and usage of mental health services, making Canadians far more likely to seek and use mental health services than Americans.

Employing the CCHS 1.2, Starkes et al., (2005) specifically examined mental health services use across all Maritimes provinces (Nova Scotia, Newfoundland, P.E.I, and New Brunswick) and found that there existed a great number of respondents that could be identified as having a diagnosable mental health disorder (specifically mood disorders). Although the authors do recommend improved access to mental health services, many of the respondents reported not having direct and immediate access to care. One possible reason might be to due to social and structural

inequalities that lead to poverty and unemployment. On the one hand, these inequalities can lead to stress and trigger mental health disorders, while issues related to poverty can prevent individuals from having necessary resources to pay for mental health services.

Vasiliadis and colleagues (2009) found that individuals residing in Quebec were more likely to use the services of psychologists. However, residing in Quebec was not a significant predictor for mental health services use in this thesis study.

### **Need**

*Need factors* can be defined as factors associated with the individual's recognition of illness and the severity of that illness. Additionally, *need factors* can also be viewed as factors related to external and social interpretations and recommendations to seek and use appropriate health services (i.e. family member encouraging a family member to seek medical attention for flu-symptoms).

In relation to this study, *need* was indicated by individual's self assessment and self-perception of physical and mental health. Of the need factors, very good self-perceived physical health and all of the self-perceived mental health measures remained significant predictors for

mental health services use amongst those who were identified as having a diagnosable anxiety disorder.

### ***Self-rated Mental Health Status and Use***

In this study, individuals that reported excellent mental health status were the least likely to seek and use mental health services in comparison with those who reported very good and good status, and even more so with those who reported fair mental health status. Those who reported increasingly poorer self-perceived mental health status were more likely to seek and use mental health services, especially among those who had been identified as having a diagnosable anxiety disorder.

Link and Phelan (2004) indicated that individuals who were diagnosed with a mental health disorder also reported very poor mental health status; however, these same individuals were unlikely to admit to seeking and using mental health services due to fears associated with stigmatization and labeling that arose from the admission of having a mental health disorder. As a result, these individuals often did not seek help for their disorder until the mental health disorder had reached a point of severity such that these individuals could not cope or function with day to day living.

In the case of this study, those individuals who had been identified as having a diagnosable anxiety disorder were more than twice as likely to seek and use mental health services. Other studies (Bergeron et al., 2005; Drapeau et al., 2005; Frise et al., 2002) support these results and have also demonstrated that those individuals that are diagnosed as having a mental health disorder, and moreover, an anxiety disorder, are the most likely to seek and use mental health services.

Of the self-rated physical health measure, individuals reporting very good physical health were significantly less likely to seek and use mental health services as compared to those reporting excellent, good, fair or poor physical health. While it is well understood that individuals reporting excellent to fair mental health status might not be cogent or concerned with the possibility of any underlying mental health disorder, it is interesting to note that the other self-rated physical health measures were not significant.

### ***Mood Disorder with Anxiety***

In this study, the co-morbidity measure of having both diagnosable anxiety disorders with mood disorder was a strong predictor for mental health services use. Previous

studies supported these results, as it has been demonstrated that individuals who present more than two diagnosable disorders were at increased odds to seek and use psychiatric services or to be hospitalized (Currie et al., 2005; Frise et al., 2002; Wu et al., 1999). Currie et al., (2005) concluded that individuals, who were identifiable as having both major depressive disorder and alcohol dependence, were also found to be 12 times more likely to also have other diagnosable substance dependence. Arguably, the authors did not suggest an increased propensity to seek and use mental health services; however, they did highlight the importance of acknowledging the possibility for increased mental health services utilization that can be associated with the presence of additional co-occurring disorders.

### ***Limitations to Study***

Statistics Canada collected responses and compiled data, for the CCHS 1.2 (Mental Health and Well-being) over a period of 1 year in 2002, with this in mind, the data used for these analyses are cross-sectional in nature. The limitations associated with cross-sectional data, although seemingly minor, can have an effect on potential research designs. This possible limitation is due to the nature of the cross-sectional data only being reflective of a "snap-

shot" of the population at the time the data had been collected. Responses collected for the CCHS could only account for individuals that were identifiable for either a life-time or 12-month diagnosis at the time of collection, and it remains to be seen if the prevalence of anxiety related disorder (let alone other mental health disorder diagnoses) could have possibly increased between the period of data collection and into current day, as this could also have a subsequent impact on increasing rates for mental health services utilization.

### ***Summary***

In summary, gender and education remained increasingly strong predictors for mental health services use, while the presence of co-occurring mood disorder greatly increased an individual's propensity to seek and use services. Chapter Six provides a final discussion of the outcomes of this thesis study and directs us toward future investigations.

## Chapter Six

### Conclusion

#### ***Benefits of Andersen's Model***

Andersen's (1968) initial model examined health services use as it related to the family as a social entity and unit of analysis. In this, he found that the greatest predictors for health services utilization could be explained in terms of predisposing and most importantly, enabling characteristics, especially as it related to seeking and using primary physician care (i.e. strongly predicted by size of family, family income and employment status of main income earner, and the ability to afford the expenses of health care). In Andersen's 1995 revision of his Behavioral Model of Health Services Use, Andersen took into account health services use as it related to the individual, where he ascertained that individual health services use could be explained by factors pertaining to the predisposing variables of gender, ethnicity and health beliefs. Additionally, he also indicated that the enabling characteristics of income, employment status, education and region of residence had great influence on whether an individual would seek and use services.

Other work conducted by Goodwin & Andersen (2002), examined how the predisposing characteristics of gender,

marital status and the enabling characteristics of education greatly influenced perceived need to seek and use mental health services as it related to those with diagnosed panic and anxiety disorder. Further studies have also suggested a connection regarding the predisposing characteristics of gender, age and the presence of other mental health disorders (anxiety with mood or anxiety with other chronic diseases) in precipitating an increased need to seek and use mental health services (Bergeron et al., 2005; Koenen et al., 2003).

The only predisposing variable that could account for increased usage (that survived across all logistic models) for mental health services was gender. An increase in emotional/informational social support measures suggested a decreased likelihood to seek and use mental health services, and even be considered as having a protective effect.

With the enabling characteristics, greater levels of education and provincial residency of the respondent was a very strong predictor for mental health services use for those with identifiable anxiety disorder. However, it is not fully understood why living in Quebec was not a significant predictor, even though Quebec has the largest number of mental health specialists and psychologists.

The most intriguing result was demonstrated with the co-morbidity measure as it related to individuals who could be identified as having both a diagnosable anxiety disorder with diagnosable mood disorder, suggesting that perceived need and the presence of additional mental health disorders could possibly be an even greater predictor for mental health services use for those seeking treatment.

### ***Delivery of Mental Health Services in Canada***

The current Canadian Health Care System was based upon the principles of Universal Health Care, where five components established the framework for health care delivery in Canada. It was upon these components that equitable health care could be accessed by all Canadians regardless of the province they resided in, their income status, race, gender or ethnicity. The five components are: Universality which stipulates that Universal Health Care be available to all Canadians regardless of age, income or social status. Portability refers to health benefits being portable from province to province (i.e. an individual from Quebec, who is visiting Ontario, must be able to receive adequate health care if illness occurs). Comprehensibility indicates that universal benefits should cover all necessary medical or surgical procedures, and required medications and

treatments, while in hospital. Administration requires universal health care to be based on a non-profit basis. Finally, accessibility requires that the same services be available in all provinces equally (Armstrong & Armstrong, 2003; Clarke, 2004).

In Canada, access to health care is presumed to be an equitable human right, where access to health care services is readily available to all communities across this country. However, current logic contradicts this notion of "ready and available" health care with evidence demonstrating backed-up and capacity filled emergency waiting rooms, excessively long wait times to see specialists, closed hospital wards and reduced health care services; and remarkably, this is occurring within allopathic health care situations (Armstrong & Armstrong, 2003).

When attempting to access mental health services, most individuals must rely on family and general physicians, either for referrals to psychiatrists, or must "make-do" with being prescribed anti-depressants (i.e. Paxil or Effexor) or anxiolytic (i.e. Wellbutrin) medications to help treat symptoms associated with anxiety or depression. Moreover, many family physicians prescribe these medications even before a proper mental health screening and diagnosis is made by a mental health professional (Clarke, 2004).

Currently in Ontario, only psychiatrists are covered under the Ontario Health Insurance Plan (OHIP). Access to other mental health providers such as: social workers, psychologists, therapists and counselors fall under the jurisdiction of private health care, where the recipient of these services must pay for the expenses "out-of-pocket" or have employer benefits that provide coverage for such mental health services (Clarke, 2004).

This implication is important as Canadian Health Care was built on the premise of providing adequate and equitable access to health care services, and this should also include mental health care (Armstrong & Armstrong, 2003). As well, it has been noted that good overall health often begins with good mental health, as poor mental health has been associated with increased cardiovascular disease, obesity, and catastrophic illnesses from increased stress (Wermuth, 2003).

In terms of mental health services in Canada, mental health care does not fall under the same category or consideration as physical or catastrophic illness. Furthermore, mental health services are not given the same courtesy as primary health services, in that, mental health care is not portable (you can not carry this benefit from province to province), it is not comprehensive (the only

available hospital mental health service is usually the psychiatric ward, but this is not easy to access and requires a full psychiatric assessment before admission), it is not held to non-profit criteria (most people must pay for their therapy sessions with a Social Worker or Psychologist), and it is not all that accessible.

When individuals require mental health care, these individuals often must rely on practitioners whose specialty is not mental health or psychiatric care, to properly diagnose potential mental health disorders and prescribe the appropriate treatments. Resultantly, many of these individuals do not receive crucial referrals to mental health specialties (i.e. due to lack of psychiatrists or lack of professional mental health facilities), therefore, inhibiting any to access proper care. Also, many of these psychotropic drugs result in terrible iatrogenic side-effects that can range from rapid weight fluctuations to suicidal ideation (Clarke, 2004). When it comes to those who accessed mental health services, how many of these individuals only sought the advice of family physicians and how many of these individuals were prescribed medications long before finally seeking and using the services of a mental health professional?

### ***Those Who Have Need***

Previous Canadian studies have focused on perceived need and the presence of co-morbid mental health disorders as mitigating factors associated with increased need to seek and use mental health services. In a study by Vasiliadis and associates (2009) that utilized Andersen's model, it was found that poor self-rated mental health and the presence of other chronic illnesses greatly influenced and contributed to an increased propensity toward mental health services use. Moreover, it also suggested that these need factors were also directly associated with increased use of psychiatrist consultations.

In terms of this study, factors associated with self-perceived mental health status also suggested that as one reports feeling poorly about his or her mental health status that this can result in an increased acknowledgement of a possible presence for a mental health disorder that needs to be addressed. Given that this study demonstrated a four-fold increase of individuals, who could be identified as having a co-morbid diagnosis of both anxiety and mood disorders it is worth noting that these individuals will have also reported as having poor self-perceived mental health status.

### ***Those with Unmet Need***

In this thesis study, individuals who were in the Canadian Forces, living on First Nations Reserves, those incarcerated and homeless peoples are populations that also have need, but these needs are often unmet (Starkes et al., 2005). Additionally, those classified within these populations were excluded from responding to CCHS 1.2 Mental Health and Well-being, yet these individuals do reflect those with possibly the greatest need for access to mental health services.

### ***Canadian Forces Members***

Statistics Canada offers a master data set that focuses specifically on Mental Health and Well-being of those in the Canadian Forces and includes all mental health measures except those related to suicidal ideation (indication of suicidal ideation can be seen as grounds for medical release within the Canadian Forces) (Canadian Community Health Survey, Mental Health and Well-being 1.2: Canadian Forces, 2003). However, previous research has demonstrated a greater need for increased mental health services support for those returning from deployment in combat missions in the Persian Gulf and Afghanistan. Soldiers returning from these missions have been identified as having diagnosable

post traumatic stress disorder, agoraphobia, substance dependence and severe depressive episodes (Chatterjee et al., 2009; Fikretoglu, Brunet, Guay & Pedlar, 2007; Stapleton et al., 2006). Additionally, returning soldiers on Canadian Forces Base Petawawa have demonstrated the highest propensity for severe panic attack, post traumatic stress disorder and anxiety disorder, as well as other operational stress injuries, and have seen recent closures of mental health services centres near this base (i.e. the closure of Pembroke Hospital's Outpatient mental health centre) (McFayden, 2008).

The closure of mental health facilities and programs has left many vulnerable CF members without access to critical mental health treatments. Yet, those in the Canadian Forces do have access to health services but access to these health services are heavily regulated and monitored, where utilization of mental health services can be documented in personnel files. Diagnosis of a mental health disorder can be deleterious to a CF member's potential career advancement, and therefore, many Canadian Forces members may forgo seeking and using mental health services in fear of the negative impact that a mental health disorder diagnosis may bring (Baird, 2010; Fikretoglu et al., 2007). It would be of great value to focus research

efforts on investigating the prevalence of anxiety related disorders in the Canadian Forces, especially in light of the coming end of combat operations in Afghanistan and the purported increase of post-traumatic stress disorder and anxiety disorder being experienced by CF members who have served in those missions.

### ***Homeless Populations***

Those who are considered homeless often experience severe mental health disorders, such as bipolar disorder, personality disorder, schizophrenia, substance dependence and post traumatic stress disorder, and are continually subjected to threats of violence (Riordan, 2004; Wermuth, 2003). Those who are homeless have poorer physical health than the general population, have few to no social supports and can not access health services as readily as the general population (Cohen, 2003; Wermuth, 2003).

A state of homelessness produces a formidable barrier that prevents homeless people from being able to access the appropriate care to address their mental health disorders, where having no address, no health card can result in no care (Transken, 2000). Additionally, the stress of being homeless can further complicate already present mental health symptoms and exacerbate symptoms related to anxiety,

depression or substance dependence (Transken, 2000). Increased efforts to research mental illness amongst the homeless population can serve to reduce the disparities of health care access within the Canadian population; to develop a stronger understanding of how mental health disorders further complicate the situation of homelessness; to better inform front line social workers and outreach support workers in assisting and treating homeless peoples with mental health disorders and to insist that policy makers develop mental health programs that would be more far reaching and would better meet the mental health needs of homeless people (Frankish, Hwang & Quantz, 2005; Riordan, 2004).

### ***First Nations/Aboriginal Canadians***

First Nations Reserves face the highest unemployment rates, have the greatest number of uneducated peoples, experience the highest number of violent crimes per capita, and see the greatest number of individuals living well under the poverty line (White, 2007). People living on First Nations Reserves also experience the greatest level of substance dependence and suicide rates amongst adolescents in all of Canada (Whitbeck et al., 2006). Anxiety disorders are also very prevalent within the First Nations

populations, but due to structural and geographical barriers associate with living in remote locations, many First Nations people do not have direct access to mental health services (let alone critical primary care) and have little to no ability to seek and use services to help address and treat mental health disorders (Simpson & Porte, 2000; White, 2007).

### ***Institutionalized/Incarcerated***

Individuals who were either incarcerated in Federal Corrections Facilities or who were residents of Long-term Care Facilities were not included in the collection of CCHS survey data. Previous research investigated the connections between mental health, homelessness and incarceration, and found that many of those who had been incarcerated also had a greater probability for diagnosable mental health disorders (Blitz et al., 2005; Riordan, 2004). As well, this research also demonstrated that prison inmates were not necessarily receiving appropriate mental health treatment, and upon release, many of these former inmates became homeless or engaged in acts of recidivism (Riordan, 2004).

According to Riordan (2004), since the inception of Offender Intake Assessment practices in 1988, the rate of diagnosable mental health disorders amongst inmates grew

sharply, which better informed Correctional Services of Canada on the best practices for identifying and treating inmates with mental health disorders. However, the rate of mental health disorders of those incarcerated in the Canadian Corrections System still continues to climb.

***Identifying Rural versus Urban: Issue of Barriers to Access?***

In this thesis study, the geographical variable of urban and rural residence did not produce significant effect in any of the models, but the issue of barriers could lie at the heart of the differences between residing in urban or rural settings and accessing mental health services. Examining perceived barriers to access, especially as related to Canadians living in rural and isolated settings could provide important information regarding limited access to mental services delivery in rural or remote areas.

According to previous research, the ability to access services and the presence of barriers to those services, have a great determining effect if an individual will seek and use health services (Andersen, 1968, 1995; Andersen & Newman, 1973; Philip et al., 1998). Barriers to services could be seen in terms of a lack of resources to access services (i.e. transportation to and from treatment centers, physical accessibility to services, inability to pay-out-of

pocket expenses incurred, long-waiting lists). Often, the presence of barriers can also discourage an individual from seeking and using care.

Barriers due to accessibility would measure the ability or inability of an individual to access services based on issues pertaining to transportation, cost, availability of childcare and inability to schedule appointments. Barriers due to acceptability indicate as to how well treatment is being received by the respondent and if treatment is consistent and beneficial to the recipient. These issues pertaining to barriers brings importance to the investigation of differences in services access across Canada, and could yield important results concerning the differences in mental health services access between those living in the Maritime Provinces, Quebec, Ontario and the Western Provinces.

Additionally, more in-depth study could examine the types of services provided within urban or rural settings as related to accessibility, availability and acceptability for mental health services delivery. The CCHS provided some responses related to types of mental health services accessed and includes responses associated with psychiatric services, psychologists, social workers, public health nurses, counselors, community therapists and clergy trained

in mental health practice, as these types of services do vary from region to region and province to province.

### **Behavioral Model of Health Services Use: Canadian Context**

In summary, a combination of predisposing (gender and age to a certain extent) and enabling (geographical location and educational attainment level) were the best predictors for mental health services utilization. The presence of other need variables, such as a co-occurring mental health diagnosis, also remained a strong predictor for mental health services use. Andersen's original 1968 model suggested that a family's use for health services would be mitigated by enabling characteristics and family size and income of the primary household earner, while his 1973 and 1995 models connected need as being the strongest predictors for health services use when related to an individual.

The application of Andersen's Behavioral Model of Health Services Use provided a theoretically based framework to predict mental health services use within a sample of individuals that had diagnosable anxiety disorder. Predisposing and enabling characteristics were associated with seeking and using care, while need characteristics were directly connected to increased usage of mental health

services. The primary conclusion directs us toward a descriptive that suggests that Canadian women, who are highly educated, between the ages of 36-55 years of age, and who reside in the Atlantic or Western provinces of Canada, and who also have been recognized as having a co-occurring mood disorder could be the greatest users of mental health services.

In terms of the overall applicability of Andersen's Behavioral Model of Health Services Use in the study of mental health in the Canadian population, his model was useful in determining probable usage based upon discrete variables. However, the Canadian population is far more diverse than discrete variables that simply predict by age, gender or socio-economic status, which only offers an individualized account for mental health services use.

Andersen's model could not explain the minute differences in predicting mental health services in relation to private health coverage, where some respondents were able to seek and use services because they had additional insurance supports that allowed them to seek and use mental health services. Who is not to say that if Canada had a completely public based mental health care system that more of these respondents might have actually sought and used services? Also akin to this, Andersen's model could not

fully account for those living on some form of social assistance or disability pensions (i.e. Ontario Works, Ontario Disability Supports Program, Canadian Pension Plan) where these recipients have probability for an identifiable mental health diagnosis and an even greater need for mental health services.

Andersen's model also did not allow for the consideration of provincial programming that varies from province to province, such as the case of Quebec, where there are more provincially funded psychologists and social workers than the rest of Canada. Future studies using Andersen's model must consider the impact that provincial location can have on predicting whether or not, an individual will seek and use mental health services.

In summary, Andersen's model provided an apt tool to predict mental health services use based upon age, gender, education and the presence of other mental health disorders. Andersen's model could be further tailored to include variables that reflect the growing needs for mental health services as related to changing health care policy, an aging population, unstable economic conditions and increasing awareness for improvements in mental health service provisions, especially as these are related to the needs of the Canadian population.

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