

Mental Health Service Use by Canadian Older Adults with Anxiety:
Correlates of Service Use, Social Support, and Treatment Outcomes

by

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ABSTRACT

Despite growing evidence that anxiety can be a significant problem in late-life, information regarding the use of mental health services by older adults for anxiety is lacking. The current research project consists of three studies focusing on this issue. The first study examines the rates of mental health service use among older adults with anxiety disorders and high levels of anxiety symptoms, as well as individual characteristics associated with this use. The second study examines various aspects of social support as correlates of anxiety disorders in older adults, and the role of social support as an enabling resource for mental health service use. Finally, the third study examines three important outcomes of service use among older adults: treatment satisfaction, perceived treatment effectiveness, and dropout. The data for these studies came from the Canadian Community Health Survey: Mental Health and Well-Being (CCHS 1.2), a national population-based survey that includes 12,792 respondents aged 55+ years. This research found that older adults with significant anxiety were less likely to use services than those with mood disorders, and found that indicators of need for services were the strongest predictors of use. Lower levels of functional social support were related to the presence of anxiety disorders among older adults, and lower levels of perceived emotional/informational support and positive social interactions predicted greater use of services for adults throughout the lifespan. Finally, older adults were generally satisfied with services, perceived them as helpful, and were likely to remain in treatment. Analyses indicated that individual characteristics likely play only a small role in these outcomes. In general, this project provides new and important information that can inform policy, clinical work, and future research regarding late-life anxiety.

CO-AUTHORSHIP

The three manuscripts included in this project were prepared in collaboration with my advisor, Dr. Corey Mackenzie. In addition, the study described in Chapter Two, “Mental Health Service Use among Canadian Older Adults with Anxiety Disorders and Clinically Significant Anxiety Symptoms” was co-authored by Drs. Judith Chipperfield and Jitender Sareen. I am the primary author of all three of the manuscripts. As the primary author, I was responsible for conceptualization of the research questions and methods, execution of statistical analyses, and preparation of the manuscripts. My co-authors provided guidance and assistance in all aspects of this project, especially providing input into the conceptualization and design of the project and feedback on manuscript revisions.

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CHAPTER ONE: GENERAL INTRODUCTION

While current estimates indicate that approximately 16% of older adults meet the criteria for a past-year mental disorder (Andrews, Henderson, & Hall, 2001; Jeste et al., 1999), evidence continues to grow showing that they are disproportionately underrepresented among mental health services users (Alonso et al., 2004; Andrews, Henderson, & Hall, 2001; Sareen, Cox, Afifi, Yu, & Stein, 2005; Wang et al., 2005). Government agencies examining mental health services in Canada (The Standing Senate Committee on Social Affairs Science and Technology, 2006), Europe (Commission of the European Communities, 2005) and the United States (Bartels, 2003) have all highlighted older adults as an under treated segment of the population with regard to mental health services. These reports emphasize the urgent need for research examining older adults' use of mental health services, and researchers have begun responding to this call (Cairney, Corna, & Streiner, 2010; Mackenzie, Pagura, & Sareen, 2010; Pickard, 2006). However, it has been noted that older adults are a heterogeneous group and that mental health services research should reflect this diversity (Borson, Bartels, Colenda, Gottlieb, & Meyers, 2001). While research has begun to explore service use by depressed older adults (Choi, Morrow-Howell, & Proctor, 2006; Cole, McCusker, Sewitch, Ciampi, & Dyachenko, 2008; Crabb & Hunsley, 2006), service use by older adults with anxiety problems has been relatively absent from the research literature. This project seeks to address this gap in the literature by examining the use of mental health services by older adults with anxiety disorders and significant anxiety symptoms.

Anxiety in Older Adults

The relative lack of research focussing on service use for anxiety in older adults

might lead one to believe that anxiety is not a significant problem in late life. However, there is a growing body of evidence suggesting this is not the case (Wetherell, Maser, & van Balkom, 2005). Although prevalence rates of anxiety disorders tend to diminish with increasing age (Krasucki, Howard, & Mann, 1998; Streiner, Cairney, & Veldhuizen, 2006), these disorders remain relatively common among older adults. The overall prevalence of any past-year anxiety disorder among older adults living in the community ranges from 2.4% to 15% (Bryant, Jackson, & Ames, 2008). Within the Canadian population, the percentage of those aged 55 and older meeting criteria for an anxiety disorder within the past year was recently estimated at 0.82% for panic disorder (Corna et al., 2007), 1.32% for social phobia (Cairney et al., 2007), and 0.61% for agoraphobia (McCabe, Cairney, Veldhuizen, Herrmann, & Streiner, 2006). Earlier research found six month prevalence rates for adults aged 65 and older in Edmonton, Alberta, Canada were 3% for phobias, 0.3% for panic disorder, and 1.5% for obsessive compulsive disorder (Bland, Newman, & Orn, 1988). Some have also argued that current diagnostic criteria and measurement instruments have not been validated for older adults and may be underestimating the prevalence of anxiety disorders among older people (Fuentes & Cox, 1997; Palmer, Jeste, & Sheikh, 1997). In fact, studies have found clinically significant levels of anxiety symptoms in 19-20% of community-dwelling older adults (Himmelfarb & Murrell, 1984; Mehta et al., 2003). In addition, the relatively high rates of anxiety disorders found among residents of long-term care facilities (Seitz, Purandare, & Conn, 2010) indicate that survey data which is limited to community-dwelling older adults underestimates overall prevalence rates.

The prevalence of anxiety problems among older adults is particularly concerning

given the negative impact anxiety has on the lives of older individuals. For instance, a study of anxiety disorders and high levels of anxiety symptoms among older adults found anxiety to be negatively associated with many aspects of quality of life, including higher rates of disability, greater loneliness, less life satisfaction, and lower levels of perceived health (de Beurs et al., 1999). Similarly, a study of older adults with generalized anxiety disorder found that these individuals reported poorer social functioning and physical health compared to controls (Loebach Wetherell et al., 2004). In fact, anxiety disorders have also been associated with an increased risk of mortality for older men (van Hout et al., 2004). Research not specific to older adults has also found anxiety to be associated with impairment in several quality of life and psychosocial functioning domains (Mendlowicz & Stein, 2000) as well as increased risk of suicidal ideation and suicide attempts (Sareen, Cox, Afifi, de Graaf et al., 2005). Given the potential risks to older adults with anxiety problems, it is especially important to understand why many of these individuals are not receiving treatment for their anxiety.

The Underutilization of Mental Health Services

As mentioned above, the discrepancy between the number of those in need of mental health services and those who receive these services is substantial for older adults. In a recent study of Canadians aged 55 and older, Cairney and colleagues (2010) found that only 37% of the older adults who met criteria for a past-year mental disorder had used mental health services in that year. These results indicate that over 60% of older adults who were likely in need of treatment went without it. When combined with findings of the underutilization of mental health services among individuals with anxiety (Mojtabai, Olfson, & Mechanic, 2002), older adults with anxiety problems are likely

particularly underserved in the mental health care system.

Older adults' especially low rates of mental health service use is concerning for many reasons. Growing evidence of effective treatment of older adults with anxiety problems (Hendriks, Oude Voshaar, Keijsers, Hoogduin, & van Balkom, 2008; Lauderdale & Sheikh, 2003; Stanley & Beck, 2000) indicates that many who are not receiving services could be experiencing significant improvement with treatment. Also, the proportion of older adults in the general population continues to rise. In fact, in Canada the percentage of the population over 55 is projected to rise from the current 24% to 37% by 2031 (Statistics Canada, 2005). This increase means that the number of older adults needing mental health treatment will also rise. Jeste and colleagues (1999) also suggest that there will be a disproportionate increase in older adults with mental health problems in the population as the baby boomer generation reaches old age. They note that improvements in overall standard of living and better psychiatric treatment will result in greater longevity for those with mental disorders. They also note that baby boomers are expected to be more susceptible to mental illness compared with the current cohort. In the case of anxiety, evidence suggests that this increase in prevalence may continue beyond the baby boomer generation. In a meta-analysis of college students' self-reported levels of anxiety and neuroticism, Twenge (2000) reported a significant increase in anxiety from 1952 to 1993. Twenge points to lower levels of social connectedness and higher levels of physical and psychological threat (e.g., crime rate, unemployment) as reasons for this increase. As these younger cohorts reach old age, it is likely that this tendency toward anxiety will result in greater levels of anxiety disorders. The current research responds to this pressing need to understand the use of mental health services by anxious

older adults.

The Behavioural Model of Health Services Use

This project is guided by the Andersen's behavioural model of health services use (1995, 2008), the dominant model used in mental health service utilization research. In his most recent version of the model, Andersen outlines four main components to health service use. These include contextual characteristics (e.g., health care system factors, community characteristics), individual characteristics (e.g., socioeconomic characteristics), health behaviours (e.g., use of health services), and outcomes (e.g., satisfaction with services). According to the model, both contextual and individual characteristics have an impact on health behaviours and outcomes. The model also contains feedback loops in which health behaviours and outcomes have an effect on subsequent contextual and individual characteristics and outcomes of service use have an effect on future health behaviours.

In order to better understand the use of mental health services by older adults with anxiety problems, the current research focuses on two main aspects of Andersen's (2008) model: (1) the individual characteristics associated with mental health service use, and (2) the individual characteristics associated with treatment outcomes. Three categories of individual characteristics are thought to influence mental health service use and treatment outcomes: predisposing characteristics, enabling resources, and need for care.

Predisposing characteristics are those demographic variables which might indirectly influence service use, such as age and gender. Enabling resources consist of those things that can assist or impede service use such as income and social support. Finally, need for care includes objective indicators of need for services such as diagnosed disorders and

subjective indicators such as perceived need for mental health services. Researchers guided by the behavioural model of health services use have examined the correlates of mental health service use among national populations (Parslow & Jorm, 2000) as well as the unique constellations of correlates within specific groups such as adolescents and young adults (Bergeron, Poirier, Fournier, Roberge, & Barrette, 2005), women (Padgett, Patrick, Burns, & Schlesinger, 1994), and ethnic groups (Abe-Kim, Takeuchi, & Hwang, 2002). The disparate findings of these studies and others highlight the importance of examining factors associated with mental health service use among particularly underserved sectors of the population.

The Present Research

This research project consists of three studies using the Canadian Community Health Survey: Mental Health and Well-Being (CCHS 1.2). The CCHS 1.2 is a national population-based survey that contains extensive cross-sectional data on mental health status and the use of mental health services, and includes 12,792 respondents aged 55 years and older. First, Chapter Two describes a study examining the rates of mental health service use among older adults with anxiety disorders and high levels of anxiety symptoms. This study also examines the predisposing, enabling, and need variables associated with service use among these older adults.

Chapter Three describes a study which expands on the research described in Chapter Two, by examining the role of structural and functional aspects of social support as correlates of anxiety disorders in older adults. This study also examines these social support variables as factors influencing mental health service use for individuals with anxiety disorders, and explores whether age interacts with social support in predicting

service use.

Chapter Four presents a study that examines three important outcomes of mental health service use among older adults: treatment satisfaction, perceived treatment effectiveness, and treatment dropout. Treatment outcome is a largely unexamined aspect of mental health service use in general, and research regarding outcomes of older services users is very limited. Due to the lack of previous research in this area and limitations due to sample size, this study does not focus specifically on older adults with anxiety, but rather on all older adults in the CCHS-1.2 who used mental health services in the past year. Information regarding these outcomes is particularly important, as they tend to be associated with the level of functioning following treatment and can be important indicators of the quality of services received (Druss, Rosenheck, & Stolar, 1999).

Finally, Chapter Five presents a general discussion of this research project. This chapter includes a discussion of the overall findings of the three studies, and places these findings within the context of other research on this important topic.

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CHAPTER TWO

Mental Health Service Use among Canadian Older Adults with Anxiety Disorders and
Clinically Significant Anxiety Symptoms¹

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Abstract

Objectives: Despite evidence of disproportionate underutilization of mental health services by older adults and by individuals with anxiety disorders, little is known specifically about service use by older adults with anxiety. This study examines the prevalence of mental health service use among older adults with anxiety disorders and clinically significant anxiety symptoms, as well as factors associated with service use.

Method: The authors used data from the Canadian Community Health Survey-Mental Health and Well-Being, a nationally representative survey of community-dwelling Canadians. This study examined past-year use of mental health services in both the specialty mental health and general medical sectors by adults aged 55+ (N = 12,792).

Logistic regression analyses examined predictors of service use among those with anxiety disorders (N = 279) and clinically significant anxiety symptoms (N = 880). **Results:** Only 20.8% of older adults with an anxiety disorder and no mood disorder used services in the past year, compared to 43.1% of those with a mood disorder and 72.7% of those with comorbid disorders. In the final logistic regression models, only need variables were significant predictors of service use among older adults with anxiety disorders and among those with significant anxiety symptoms. **Conclusion:** Findings indicate that anxious older adults are less likely to use mental health services than those who are depressed. While predisposing and enabling factors do not appear to impede service use, the need for help does. Anxious older adults and those they interact with may not be interpreting their anxiety symptoms as warranting services.

Evidence of a disproportionate underutilization of mental health services by older adults is overwhelming. This has been demonstrated in Canada (Bland, Newman, & Orn, 1997; Sareen, Cox, Afifi, Yu, & Stein, 2005), the United States (Wang et al., 2005), Australia (Andrews, Henderson, & Hall, 2001), and Europe (Alonso et al., 2004). Individuals with anxiety disorders are also known to underutilize mental health services. Population-based studies have consistently found that those with diagnosed anxiety disorders are less likely to use services compared to those with diagnosed mood disorders (Alonso et al., 2004; Andrews, Issakidis, & Carter, 2001; Mojtabai, Olfson, & Mechanic, 2002). This is particularly concerning when prevalence estimates indicate that anxiety disorders tend to be more prevalent than mood disorders (Kessler, Chiu, Demler, & Walters, 2005). Given findings of disproportionately low rates of service use among older adults and among those with anxiety disorders, it is likely that older adults suffering from anxiety disorders are at especially high risk of not receiving effective mental health services.

Older Adults with Anxiety Disorders and Anxiety Symptoms

Although the prevalence of anxiety disorders tends to diminish with increasing age (Krasucki, Howard, & Mann, 1998; Streiner, Cairney, & Veldhuizen, 2006), they remain relatively common among older adults. The percentage of Canadians aged 55+ meeting criteria for an anxiety disorder within the past year is estimated at 0.82% for panic disorder (Corna et al., 2007), 1.32% for social phobia (Cairney et al., 2007), and 0.61% for agoraphobia (McCabe, Cairney, Veldhuizen, Herrmann, & Streiner, 2006). In addition, some argue that current diagnostic criteria and measurement instruments have not been validated for older adults and may be underestimating the prevalence of anxiety

disorders in this population (Fuentes & Cox, 1997; Palmer, Jeste, & Sheikh, 1997).

Support for this notion comes from studies demonstrating clinically significant levels of anxiety symptoms in up to one fifth of older adults (Himmelfarb & Murrell, 1984; Mehta et al., 2003). Furthermore, research has found no difference in the level of disability and well-being between older adults with diagnosable anxiety disorders and those with clinically significant anxiety symptoms (de Beurs et al., 1999). These findings suggest that many older adults with anxiety symptoms who do not meet the criteria for an anxiety disorder are also likely in need of mental health services. As a result, to fully understand the use of mental health services by this population it is important to examine both anxiety disorders and clinically significant symptoms of anxiety.

While few studies have examined the prevalence of mental health service use among older adults with anxiety, evidence does suggest that disproportionately few of these individuals use services. One study of Medicare beneficiaries found that only 17% of those with anxiety disorders saw a mental health specialist compared with 55% with mood disorders (Ettner & Hermann, 1997). Similarly, a study of public mental health service users in Texas found that only 10% of older adult service users had anxiety disorders compared with 60% with mood disorders (Karlin & Norris, 2006).

Unfortunately, these studies only include service users and are not able to provide information about the percentage of older adults with anxiety disorders who do not use services.

As strategies are developed to address the potential crisis related to increased need for services for older adults with mental health problems in the population in the coming decades (Borson, Bartels, Colenda, Gottlieb, & Meyers, 2001; Jeste et al., 1999), it is

important that older adults with anxiety are represented in the research literature. In response to this, our first objective was to examine the use of mental health services in a nationally representative sample of Canadian older adults with anxiety disorders and clinically significant anxiety symptoms.

Predictors of Mental Health Service Use

The second objective of this study was to identify the factors associated with the use of mental health services by this population. According to Andersen's (2008) Behavioural Model of Health Services Use, three categories of individual characteristics influence service use: predisposing characteristics, enabling resources, and need for care. Recent research guided by this model has begun to examine the correlates of mental health service use among older adults in general (Li, Proctor, & Morrow-Howell, 2005; Pickard, 2006) and among older adults with depression (Choi, Morrow-Howell, & Proctor, 2006; Crabb & Hunsley, 2006). However, to the best of our knowledge, there has been no published literature on the correlates of service use among older adults with anxiety. This study seeks to address this gap in the literature and is guided by previous research examining service use among older adults and among adults with anxiety problems.

Predisposing Factors. According to Andersen's (2008) model, the most distal individual characteristics that affect service use are sociodemographic predisposing characteristics. Studies have found that the older-old (aged 75+) are less likely to use mental health services than the younger-old (aged 65-74; Cole, McCusker, Sewitch, Ciampi, & Dyachenko, 2008; Crabb & Hunsley, 2006). In contrast to clear evidence that younger women are more likely to use services (Rabinowitz, Gross, & Feldman, 1999;

Wang et al., 2005), gender does not appear to be related to service use among older adults (Cole et al., 2008; Phillips & Murrell, 1994; Pickard, 2006). Furthermore, findings regarding other potential predisposing variables, such as marital status and education have been equivocal (Cole et al., 2008; Phillips & Murrell, 1994; Pickard, 2006).

Similarly, the predisposing factors associated with service use among those with anxiety problems are not clear. A large population study of Australian adults with anxiety symptoms found that, of the predisposing variables, only being widowed, separated, or divorced was associated with higher rates of service use (Issakidis & Andrews, 2002). However, other studies examining service use for particular anxiety disorders found it to be more likely among those who were older (Goodwin, Koenen, Hellman, Guardino, & Struening, 2002), married, and more highly educated (Goodwin & Andersen, 2002).

Enabling Resource Factors. According to Andersen's (2008) model, the second type of individual characteristics thought to influence service use are enabling resources that can assist or impede service use. Higher income levels have been associated with greater rates of service use in some studies of older adults (Cole et al., 2008), but not in others (Phillips & Murrell, 1994). These findings parallel inconsistent findings in the general population (Kessler, Demler et al., 2005; Lin, Goering, Offord, Campbell, & Boyle, 1996; Wang et al., 2005).

Lower levels of perceived social support have been associated with increased service use among younger (Roness, Mykletun, & Dahl, 2005; ten Have, Vollenbergh, Bijl, & Ormel, 2002) and older adults (Phillips & Murrell, 1994; Pickard, 2006). With regard to anxiety, one study of adults with panic attacks found that perceived support from family was not associated with service use (Goodwin & Andersen, 2002). However,

more research is necessary to determine if the relationship between service use and social support holds for individuals with forms of anxiety disorders other than panic attacks.

Need Factors. Finally, the individual characteristics thought to have the most immediate influence on the use of services are need factors (Andersen, 2008). Although physical health has been negatively associated with mental health service use among the general population (Andrews, Issakidis et al., 2001; Vasiliadis, Lesage, Adair, & Boyer, 2005), conflicting results have been reported with older adults (Karlin & Norris, 2006; Phillips & Murrell, 1994). With respect to mental health need factors in older adults, service use has been associated with poor psychological well-being (Phillips & Murrell, 1994), high levels of stress (Pickard, 2006), and the presence of a mental disorder (Cole et al., 2008). With regards to anxiety disorders, a study of anxiety in the Australian general population found the presence of an anxiety disorder to be positively associated with service use (Issakidis & Andrews, 2002). Interestingly, when the researchers examined individual anxiety disorders only panic disorder was a significant predictor of specialty service use. In general, these findings indicate that mental health need variables, such as self-rated mental health and comorbid mental disorders, are likely to be the strongest predictors of service use among older adults and among individuals with anxiety disorders and clinically significant anxiety symptoms.

Hypotheses

With respect to our first objective of examining service use rates among anxious older adults, previous findings of lower rates of service use among those with anxiety disorders compared to other mental disorders (Ettner & Hermann, 1997; Karlin & Norris, 2006) led us to hypothesize that we would find lower rates of service use in older adults

with (a) anxiety disorders than mood disorders, and (b) anxiety disorders only than comorbid anxiety and mood disorders. Based on findings of higher rates of service use among those with panic disorder compared to other anxiety disorders (Issakidis & Andrews, 2002; Wang et al., 2005), we also hypothesized that we would find higher rates of service use among older adults with panic disorder than those with agoraphobia or social phobia. Finally, given previous findings that older adults with mental health needs are especially likely to be treated by primary care physicians (Klap, Unroe, & Unutzer, 2003; Unutzer et al., 2000), we also hypothesized that we would find higher rates of services use in the general medical than the specialty sector.

With respect to our second objective of examining predictors of service use among older adults with anxiety, we hypothesized that mental health need factors (e.g., comorbid depression) would be the strongest predictors of mental health service use, but that service use would also be related to younger age and lower levels of social support.

Methods

Sample

The data for this study came from the Canadian Community Health Survey-Mental Health and Well-Being (CCHS-1.2). The CCHS-1.2 is a cross-sectional, nationally representative survey of Canadians aged 15 and older. Statistics Canada conducted the survey over eight months, beginning in May 2002. The final sample for the CCHS-1.2 included 36,984 individuals living in private dwellings in the ten Canadian provinces. Populations not included in the survey were residents of the Canadian territories, Indian Reserves, Crown Lands, or institutions, full-time members of the Canadian Armed Forces, and residents of certain remote regions. Respondents were

selected using a multistage stratified cluster design. The national response rate of the CCHS-1.2 was 77%. For further information regarding this survey see Gravel and Beland (2005).

The present analysis is limited to those CCHS-1.2 participants who were 55-years old and older at the time of the survey (N = 12,792). We chose this age limit to be consistent with previous research examining anxiety in older adults using the CCHS-1.2 (Cornia et al., 2007; McCabe et al., 2006).

Measures

Anxiety Disorders. Diagnoses in the CCHS-1.2 were based on the World Mental Health-Composite International Diagnostic Interview (WMH-CIDI; Gravel & Beland, 2005), which was modified for the CCHS-1.2 to lessen response burden and for clarification purposes. The WMH-CIDI is a lay-administered survey that generates lifetime and past-year mental disorders based on partial criteria from the fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV, American Psychiatric Association, 1994). The anxiety disorders included in the CCHS-1.2 were panic disorder, social phobia, and agoraphobia. For this study, we coded those meeting the criteria for at least one of these disorders in the past 12 months as having a past-year anxiety disorder.

Anxiety Symptoms. We measured past-month anxiety symptoms based on responses to four items from the reliable and valid Kessler 10-item distress scale (Kessler et al., 2002). Respondents answer how often they have experienced each item during the past month on a 5-point scale ranging from “none of the time” to “all of the time”. Although the K10 is generally used as a measure of distress, recent factor analysis has

identified anxiety and depression as second-order factors (Brooks, Beard, & Steel, 2006). The four items comprising the anxiety factor include frequency of feeling “nervous”, “so nervous that nothing could calm you down”, “restless or fidgety”, and “so restless you could not sit still”. We categorized respondents as having clinically significant anxiety symptoms if they reported experiencing any one symptom at least “most of the time”. This definition is modeled after previous research examining anxiety symptoms in older adults (Mehta et al., 2003).

Mental Health Service Use. The CCHS-1.2 collected information on lifetime and past-year use of mental health services. Respondents indicated if they had seen or talked on the telephone to various professionals about their “emotions, mental health or use of alcohol or drugs”. For the purposes of this study, we focused on ‘formal’ mental health services including: “family doctor or general practitioner”, “other medical doctor”, “psychiatrist”, “psychologist”, “nurse”, and “social worker, counsellor or psychotherapist”. We coded respondents who had seen at least one professional in the past 12 months as past-year service users. For some analyses, we also categorized service use into general medical sector (family doctor, general practitioner, other medical doctor, or nurse) and specialty mental health sector (psychiatrist, psychologist, social worker, counsellor or psychotherapist).

Predisposing Factors. The predisposing variables were age, gender, marital status, and education. We examined age continuously and categorized marital status into married/common-law relationship versus not currently married (i.e., widowed, separated, divorced, or never married). We categorized education and income for descriptive purposes and included them as continuous variables in the logistic regression analyses.

Enabling Factors. Income was based on past-year household income and included in the analyses as a continuous variable. The CCHS-1.2 measured perceived social support using the Medical Outcomes Study-Social Support Survey (Sherbourne & Stewart, 1991). This measure consists of 19-items in which respondents rate how often a particular type of social support is available if needed (1 = “none of the time” to 5 = “all of the time”). The sum of all items provides a global continuous measure of perceived social support. This scale has been shown to have adequate internal-consistency reliability and one-year stability (Sherbourne & Stewart, 1991).

Need Factors. Finally, we included four need factors in our analyses. First, with respect to chronic physical conditions, respondents indicated whether a health professional had diagnosed them with a number of common chronic conditions. We used the Charlson Comorbidity Index (CCI; Charlson, Pompei, Ales, & Mackenzie, 1987) to account for the effects of medical morbidity of each condition. We computed a total chronic physical health conditions score for each respondent by summing the CCI scores (range 1-6) assigned to each condition. Second, with respect to perceived mental health, respondents rated their mental health from 1 = “excellent” to 5 = “poor”. We reverse-coded the responses to this question so that higher scores represented greater levels of perceived mental health, and included it as a continuous variable. Third, with respect to severity of anxiety symptoms, we created a continuous variable by summing the four anxiety items from the K10. Fourth, with respect to comorbid mood disorders, past-year major depressive disorder and mania were determined using the CCHS-1.2 WMH-CIDI diagnostic algorithms. We coded those meeting the criteria for at least one of these disorders in the past 12 months as having a past-year mood disorder.

Analytic Strategy

We used binary logistic regression to examine differences in service use: (a) between older adults with anxiety disorders, mood disorders, and comorbid anxiety and mood disorders, and (b) between those with agoraphobia or social phobia and those with panic disorder. We ran both unadjusted logistic regression analyses as well as analyses adjusting for age, sex, education, marital status, and income. We also used a goodness-of-fit test to examine the difference in rates of service use in the specialty mental health versus general medical sectors. If respondents had seen professionals in both sectors, we coded them in the specialty sector, as specialty service users are often referred through the general medical sector.

We then ran two sets of analyses examining the predisposing, enabling, and need factors predicting service use. One set of analyses included older adults with diagnosed anxiety disorders ($N = 279$) and the second included older adults with clinically significant anxiety symptoms ($N = 880$). For each set, we used chi-square tests and t -tests to explore differences between those who used and did not use services for each independent variable. Following this, logistic regression analyses examined the predictors of service use. The first step of the analyses included the predisposing variables, the second step included the enabling resource variables, and the third step included the need variables. We assessed possible multicollinearity between the predictor variables in our models, and in each case, this was not a concern (i.e., variance inflation factors less than 2).

Data for this study was from the CCHS-1.2 Master File maintained at the Statistics Canada Research Data Centre. We applied the appropriate weights provided by

Statistics Canada to ensure the sample was representative of the Canadian population. Bootstrap procedures determined the 95% confidence intervals incorporating the multistage sample design information provided by Statistics Canada, using SUDAAN version 10.0 software (RTI International, 2008). All reported percentages are weighted.

Results

Older Adults with Anxiety Disorders

Among the 12,792 adults aged 55 and older, 279 (2.5%) met the criteria for at least one of the three anxiety disorders assessed in the CCHS-1.2 in the past year. The prevalence rates were 1.3 % for social phobia, 0.6% for agoraphobia, and 0.8% for panic disorder. In addition, 3.0% met the criteria for a past-year mood disorder.

Table 1 presents the percentages of older adults using services by disorder and the results from the logistic regression comparing these rates. As hypothesized, the percentage of service users was lowest for those with anxiety disorders and no comorbid mood disorder and highest for those with comorbid disorders. Compared to the odds of using services by those with no anxiety or mood disorder, the odds of using services were 6.2 times greater for those with an anxiety disorder, 20.7 times greater for those with a mood disorder, and 92.4 times greater for those with comorbid anxiety and mood disorders. We also ran a second logistic regression analysis using those with a mood disorder as the reference category. In this analysis, those with comorbid anxiety and mood disorders were significantly more likely to use services compared to those with only a mood disorder (AOR = 3.51, 95% CI: 1.48-8.32, $p < .01$).

Of the 279 older adults with past-year anxiety disorders (with or without comorbid mood disorders), 100 (34.2%) had used services in the past year. Among these,

48 (39.3%) received services in the general medical sector only, 16 (14.1%) in the specialty mental health sector only, and 36 (46.6%) in both the general medical and specialty sectors. Although the rates of service use in the specialty sector (60.6%) were higher than in the general medical sector alone (39.4%) this difference was not significant, Wald $F(1,500) = 2.25, p = .13$. Contrary to our hypothesis, compared to those with panic disorder there was no significant difference in rates of services use by those with social phobia (OR: 1.63, 95% CI: 0.60-4.41, $p = .34$) or agoraphobia (OR: 1.07, 95% CI: 0.30-3.77, $p = .92$).

Table 2 presents the characteristics of older adults with anxiety disorders who did and did not use services. Those using services were significantly younger and had lower levels of social support. Those who used services also reported more severe symptoms of anxiety, poorer mental health, and were more likely to have a comorbid mood disorder.

In the first step of the logistic regression analysis examining predictors of service use by older adults with anxiety disorders, none of the predisposing variables were significant predictors with Wald $F(4, 500)$ values < 1.09 and p values $> .29$. In step two, that introduced the enabling factors, income was not a significant predictor and social support was significantly related to service use, Wald $F(6, 500) = 6.43, p = .01$. As presented in Table 3, in the final step that introduced the need factors, social support was no longer significant. However, lower levels of self-rated mental health and the presence of a comorbid mood disorder predicted service use.

Older Adults with Clinically Significant Anxiety Symptoms

With regard to anxiety symptoms, 880 (7.7%) older adults met the criteria for clinically significant anxiety symptoms. Of these, 164 (21.7%) had used services in the

past year. Eighty-one (34.1%) received services in the general medical sector only, 32 (31.0%) in the specialty mental health sector only, and 51 (34.9%) in both the general medical and specialty sectors. The rates of use in the specialty sector (65.9%) was significantly greater than that of the general medical sector alone (34.1%), Wald $F(1,500) = 6.08, p = 0.01$. Table 4 presents the characteristics of the older adults with clinically significant anxiety symptoms. Similar to those with anxiety disorders, service use among older adults with significant symptoms of anxiety was associated with younger age, poorer self-rated mental health, more severe symptoms of anxiety, and comorbid mood disorder.

In step one of the logistic regression analysis examining predictors of service use by older adults with clinically significant anxiety symptoms, age was the only predisposing variable related to service use with the younger-old being more likely to seek help, Wald $F(4, 500) = 5.47, p = .02$. When income and social support were added in step two of the analysis none of the variables, including age, were significant predictors; Wald F values ($df = 6, 500$) were < 2.24 and p values $> .07$. As with the analyses for those with anxiety disorders, only need variables were significant in the final step of the analysis that is shown in Table 5. Service use was once again associated with lower levels of self-rated mental health, greater severity of anxiety symptoms, and comorbid mood disorder.

Discussion

Results from this study confirm that the rate of mental health service use among community-dwelling older adults with anxiety disorders is especially low, 7-8% lower than rates of service use among those with anxiety disorders in the general population

(Issakidis & Andrews, 2002; Wang et al., 2005). In our study, roughly 34% of older adults with past-year panic disorder, social phobia, and agoraphobia used professional services in the past year. Only 21% of older adults with an anxiety disorder and no comorbid mood disorder used services. Approximately twice as many individuals with mood disorders used services, and over three times as many with comorbidity sought help. These findings are consistent with previous research (Ettner & Hermann, 1997; Karlin & Norris, 2006) and support our suggestion that older adults with anxiety disorders are particularly underserved with respect to mental health services.

Interestingly, nearly three quarters of those with comorbid anxiety and mood disorders used services in the past year. In addition, those with comorbid anxiety disorders and mood disorders had significantly greater odds of using services than those with mood disorders alone. This result likely indicates greater symptom severity, particularly given previous findings that comorbid anxiety disorders are associated with greater suicide risk among those with mood disorders in the general population (Sareen, Cox, Afifi, de Graaf et al., 2005) and specifically among older adults (Lenze et al., 2000). This finding also highlights the need for effective and timely assessment and treatment of anxiety symptoms among older adults with mood disorders.

Despite low rates of mental health service use, those who did use services were often seen in the specialty sector. Of those who used services, nearly half of those with anxiety disorders and one third of those with clinically significant anxiety symptoms received past-year services in both the general medical and specialty sectors. When combined with those who only used specialty services, over 60% of both of these groups were seen in the specialty sector. This is encouraging given evidence that the use of

specialty services is associated with the receipt of effective treatment for anxiety problems (Issakidis & Andrews, 2002). This finding is also surprising given the low rates of specialty service use found among older adults with depression (Cooper-Patrick, Crum, & Ford, 1994; Unutzer et al., 2002). The reason for this difference is unclear. There may be differing treatment preferences among older adults with anxiety and depression. Physicians may also be more likely to refer older adults to specialty services for anxiety symptoms than for depressive symptoms, perhaps because they feel more comfortable treating mood problems.

Contrary to our expectations, we did not find significant differences in the rate of service use between those with social phobia or agoraphobia and those with panic disorder. Previous research among the general population has found higher rates of service use among those with panic disorder (Wang et al., 2005) and has suggested that individuals with social anxiety may be particularly impeded by stigma concerns (Olfson et al., 2000). We were not able to examine the particular reasons why individuals chose not to use services in this study. However, our findings suggest that these social aspects may not be a distinguishing factor of service use for older adults with anxiety disorders. Previous research also indicates that older adults may be less affected by stigma concerns than younger adults (Mackenzie, Scott, Mather, & Sareen, 2008). This gap in the current knowledge warrants further exploration of the barriers to service use by older adults with various anxiety disorders.

As hypothesized, mental health need variables were the strongest predictors of mental health service use. The strongest correlate was the presence of a comorbid mood disorder. Previous research has found that comorbid disorders are associated with lower

well-being and greater impairment among older adults (Cairney, Corna, Veldhuizen, Herrmann, & Streiner, 2008), which likely provides the impetus for help-seeking. The other variables significantly related to greater service use were lower levels of self-rated mental health and greater severity of anxiety symptoms. The similarity of results for older adults with anxiety disorders and those with clinically significant anxiety symptoms suggests that older adults with severe symptoms are more likely to receive services regardless of whether or not they meet the criteria for an anxiety disorder. This finding is important given previous assertions that criteria such as severity and comorbidity should be included when determining the need for mental health services in community populations (Regier et al., 1998). This finding also highlights the importance of assessing anxiety more generally in older adults rather than focusing solely on anxiety disorder diagnoses.

Interestingly, none of the predisposing variables predicted service use in our study after we included the need variables in the analyses. In contrast to previous research (Choi et al., 2006; Crabb & Hunsley, 2006), age had very little direct impact on service use in this study. However, these results do confirm previous findings that men and women use services at the same rate in older adulthood (Cole et al., 2008; Phillips & Murrell, 1994).

With regard to enabling variables, lower levels of social support predicted service use. However, this support was not a significant predictor of service use once need variables were included in the analyses. These results are inconsistent with previous studies examining service use by older adults in general (Phillips & Murrell, 1994; Pickard, 2006) but, consistent with individuals from the general population with panic

attacks (Goodwin & Andersen, 2002). The reason for this is not clear. It may be that social support decreases the need for services among those with mood disorders, but not for those with anxiety problems. Given that anxiety disorders often have a social anxiety component, certain aspects of social contact may increase stress rather than act as a buffer. Further research into the relationship between service use and various aspects of social support (e.g., emotional support, etc.) may help to clarify this.

This study should be considered in light of a number of strengths and limitations. One significant strength is that the CCHS-1.2 included a very large sample of older adults compared to previous surveys in the United States (Kessler et al., 2004) and other countries (Alonso et al., 2004; Andrews, Henderson et al., 2001). This allowed for detailed analysis of service use by older adults with anxiety disorders despite relatively low prevalence rates. In order to reduce response burden, however, only social phobia, agoraphobia, and panic disorder were assessed in the survey. The absence of other anxiety disorders, particularly generalized anxiety disorder, excludes a significant subgroup of older adults with anxiety problems. Although caution must be taken when generalizing our findings to older adults with specific phobias, GAD, PTSD, and OCD, the similarity of our anxiety disorder and symptom findings suggest that they may, in fact, be quite generalizable. The data in the CCHS-1.2 are also self-reported and susceptible to memory bias and recall errors. Additionally, lay interviewers diagnosed the mental disorders, and it is likely that diagnoses made by trained clinicians would be more valid. Finally, because the CCHS-1.2 only surveyed community dwelling individuals, our findings are not generalizable to institutionalized older adults such as those living in personal care homes.

The focus of this study was on the individual characteristics that predict mental health service use, based on Andersen's (2008) model. It is encouraging that indicators of need for services were the strongest predictors of service use. This suggests that variables that commonly filter service use in an inequitable manner (e.g., education, income) have less impact among older adults with anxiety problems. However, the low rates of service use among anxious older adults suggest that a large proportion who need services are not receiving them. While older adults generally hold positive attitudes and beliefs about mental health services (Mackenzie et al., 2008), they may not view their own anxiety as warranting these services. Given findings of low rates of perceived need for services by both older adults (Klap et al., 2003; Meadows et al., 2002) and adults with anxiety disorders (Mojtabai et al., 2002), perceived need is a likely contributor to the low rates of service use among older adults with anxiety problems. This points to a need for increased public education regarding anxiety in older adulthood and a focus on assessment of anxiety in older adults at the primary care level. A lack of evidence-based treatment for anxiety disorders in older adults may also be a barrier to these individuals receiving services (Wetherell, Lenze, & Stanley, 2005). However, recent research is providing encouraging evidence for effective treatment for this population (Ayers, Sorrell, Thorp, & Wetherell, 2007; Stanley et al., 2009).

In conclusion, older adults with significant anxiety are less likely to use mental health services than those with mood disorders. While demographic and social factors do not appear to impede service use, older adults and those they interact with may not be interpreting their anxiety symptoms as warranting mental health care services.

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Table 1

Logistic regression predicting past-year mental health service use among older adults by mental disorder

	Used MH	Did not use	OR	AOR
	services	MH services		
	N (%) ^a	N (%) ^a	(95% CI)	(95% CI) ^b
No anxiety disorder or mood disorder	393 (3.4)	11168 (96.8)	1.00	1.00
Anxiety disorder only	55 (20.8)	158 (79.2)	7.53 (4.77-11.89) ^c	6.16 (3.79-10.00) ^c
Mood disorder only	120 (43.1)	172 (56.94)	21.75 (15.10-31.33) ^c	20.74 (13.39-32.12) ^c
Comorbid anxiety disorder and mood disorder	45 (72.7)	20 (27.4)	76.38 (32.93-177.17) ^c	92.44 (33.96-259.23) ^c

Note. AOR = adjusted odds ratio, CI = confidence interval, OR = odds ratio (unadjusted).

^a Reported Ns are for the sample, whereas percentages are weighted to be representative of the Canadian population.

^b AOR indicates adjustments for age, sex, education, marital status, and income.

^c $p < 0.0001$.

Table 2

Characteristics of older adults with past-year anxiety disorders who did and did not use mental health services in the past year

	Used MH services	Did not use MH services	χ^2 or <i>t</i>	<i>p</i>
	N(%) ^a or mean \pm SD	N(%) ^a or mean \pm SD		
Age, mean \pm SD	62.2 \pm 9.4	63.7 \pm 9.2	-1.26	<0.001
Gender, N(%)			0.50	0.48
Male	34 (37.8)	56 (62.3)		
Female	66 (31.6)	122 (68.4)		
Marital status, N(%)			0.49	0.49
Married/common-law	48 (32.0)	94 (68.0)		
Not currently married	52 (37.9)	84 (62.1)		
Education, N(%)			1.97	0.37
Less than secondary graduation	39 (27.2)	75 (72.8)		
Secondary graduation	25 (41.6)	38 (58.4)		
Post-secondary degree/diploma	36 (34.6)	63 (65.4)		
Income, N(%)			3.44	0.33
<15,000	23 (35.0)	40 (65.0)		
15,000-29,999	32 (28.8)	45 (71.2)		

30,000-49,999	17 (21.3)	36 (78.7)		
50,000+	21 (42.2)	42 (57.8)		
Social support, mean \pm SD	53.8 \pm 24.4	60.2 \pm 17.9	-2.33	0.02
Chronic physical conditions, mean \pm SD	2.4 \pm 3.0	2.4 \pm 3.3	-0.10	0.92
Severity of anxiety symptoms, mean \pm SD	10.8 \pm 5.7	8.5 \pm 4.7	3.40	<0.001
Self-rated mental health, mean \pm SD	2.3 \pm 1.5	3.2 \pm 1.3	-4.76	<0.001
Comorbid past-year mood disorder, N(%)			18.26	<0.001
No	54 (20.0)	157 (80.0)		
Yes	45 (72.6)	20 (27.4)		

Note. MH = mental health, SD = standard deviation

^a Reported Ns are for the sample, whereas percentages are weighted to be representative of the Canadian population. N's for the two groups may not be equal to final sample due to missing data.

Table 3

Logistic regression predicting past-year mental health service use among older adults with a past-year anxiety disorder

Variable	AOR ^a (95% CI)	<i>t</i> ^b	<i>p</i>
Age	0.99 (0.93-1.05)	-0.29	0.77
Gender			
Male	1.00		
Female	2.33 (0.73-7.43)	1.44	0.15
Marital status			
Married/common-law	1.00		
Not currently married	1.26 (0.44-3.63)	0.42	0.67
Education	1.05 (0.85-1.30)	0.47	0.64
Income	1.18 (0.94-1.47)	1.45	0.15
Social support	0.98 (0.95-1.01)	-1.51	0.13
Chronic physical conditions	0.88 (0.70-1.11)	-1.08	0.28
Severity of anxiety symptoms	1.09 (0.93-1.28)	1.09	0.28
Self-rated mental health	0.56 (0.34-0.93)	-2.26	0.02
Comorbid past-year mood disorder			
No	1.00		
Yes	6.33 (1.80-22.24)	2.89	<0.01

Note. AOR = adjusted odds ratio, CI = confidence interval.

^a Odds ratios are adjusted for all other variables in the model.

^bWald *t* tests with *df* = 500.

Table 4

Characteristics of older adults with clinically significant anxiety symptoms who did and did not use mental health services in the past year

	Used MH	Did not use	χ^2 or <i>t</i>	<i>p</i>
	services	MH services		
	N(%) ^a or mean \pm SD	N(%) ^a or mean \pm SD		
Age, mean \pm SD	63.6 \pm 11.3	66.8 \pm 15.5	-2.93	<0.01
Gender, N(%)			0.63	0.43
Male	60 (19.0)	266 (81.0)		
Female	104 (23.6)	450 (76.4)		
Marital status, N(%)			0.63	0.43
Married/common-law	71 (19.5)	333 (80.6)		
Not currently married	93 (25.2)	383 (74.8)		
Education, N(%)			3.78	0.15
Less than secondary graduation	85 (15.3)	419 (84.8)		
Secondary graduation	32 (27.2)	123 (72.8)		
Post-secondary degree/diploma	45 (21.8)	172 (78.2)		
Income, N(%)			6.83	0.08
< 15,000	52 (21.3)	198 (78.7)		
15,000-29,999	43 (13.8)	223 (86.2)		

30,000-49,999	25 (14.4)	133 (85.6)		
50,000+	30 (29.3)	96 (70.7)		
Social support, mean \pm SD	57.7 \pm 2.5	60.4 \pm 1.4	-1.38	0.17
Chronic physical conditions, mean \pm SD	3.1 \pm 8.6	2.3 \pm 2.7	1.13	0.26
Severity of anxiety symptoms, mean \pm SD	12.4 \pm 11.3	10.3 \pm 4.0	5.54	<0.001
Self-rated mental health, mean \pm SD	2.5 \pm 2.9	3.4 \pm 1.6	-3.75	<0.001
Comorbid past-year mood disorder, N(%)			24.24	<0.001
No	86 (14.3)	644 (85.7)		
Yes	71 (57.9)	61 (42.1)		

Note. MH = mental health, SD = standard deviation

^a Reported Ns are for the sample, whereas percentages are weighted to be representative of the Canadian population. N's for the two groups may not be equal to final sample due to missing data.

Table 5

Logistic regression predicting past-year service use among older adults with clinically significant anxiety symptoms

Variable	AOR ^a (95% CI)	<i>t</i> ^b	<i>p</i>
Age	0.98 (0.95-1.02)	-0.8	0.42
Gender			
Male	1.00		
Female	2.33 (0.96-5.67)	1.87	0.06
Marital status			
Married/common-law	1.00		
Not currently married	1.19 (0.54-2.61)	0.44	0.66
Education	1.10 (0.90-1.35)	0.93	0.35
Income	1.07 (0.90-1.28)	0.81	0.42
Social support	1.01 (0.99-1.03)	1.13	0.26
Chronic physical conditions	0.87 (0.73-1.03)	-1.62	0.11
Severity of anxiety symptoms	1.16 (1.04-1.30)	2.66	0.01
Self-rated mental health	0.43 (0.28-0.64)	-4.07	<0.001
Comorbid past-year mood disorder			
No	1.00		
Yes	5.69 (2.65-12.23)	4.47	< 0.001

Note. AOR = adjusted odds ratio, CI = confidence interval.

^a Odds ratios are adjusted for all other variables in the model.

^bWald *t* tests with *df* = 500.

CHAPTER THREE

Social Support and Mental Health Service Use
among Older Canadians with Anxiety Disorders

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Abstract

Objectives: While higher levels of social support are associated with better mental health, little is known specifically about the relationship between social support and anxiety disorders in older adults. This study examines this relationship and explores the role of social support in the use of mental health services among older individuals with anxiety disorders. **Method:** The authors used data from the Canadian Community Health Survey-Mental Health and Well-Being (CCHS-1.2), a nationally representative survey of community-dwelling Canadians. Logistic regression analyses examined social support as a predictor of anxiety disorders in adults aged 55+ (N = 12,792), and as a predictor of service use among adults aged 18+ with a past-year anxiety disorder (N = 1,713). **Results:** All four types of functional social support were significant predictors of anxiety disorders in older adults. Lower levels of both emotional/informational support and positive social interactions predicted greater use of services among adults with anxiety. Age interacted with tangible support, with service use related to lower levels of tangible support among younger adults. **Conclusion:** Older adults with anxiety disorders reported lower levels of social support than older individuals without mental disorders. Unexpectedly, the relationship between social support and service use did not differ with age except in the case of tangible support. Emotional/informational support and positive social interactions predicted greater use of mental health services for young and old alike. These findings suggest that assessment of social support and social skills training should be included as elements of anxiety treatment programs for older adults.

Social support is among the most widely researched topics in gerontology. In general, social contact tends to decline with age (Lang & Carstensen, 1994; Turner & Marino, 1994), including reductions in social network size and social interactions (Lansford, Sherman, & Antonucci, 1998). However, research also suggests that these reductions in social networks tend to be limited to peripheral social relationships (Carstensen, 1992; Fung, Carstensen, & Lang, 2001) and that older adults are generally satisfied with their social interactions and the size of their social networks (Lansford et al., 1998). According to socioemotional selectivity theory, reductions in social networks in later life act to “maximize social and emotional gains and minimize social and emotional risks” (Carstensen, 1992, p. 331). Interestingly, older adulthood is also associated with lower rates of mental disorders, such as anxiety disorders, and disproportionately lower rates of the use of mental health services. It is possible that the emphasis on emotionally satisfying social relationships in old age provides these individuals with greater informal resources for coping with mental health problems and less need for formal resources such as mental health services.

Social support has been defined as “a social network’s provision of psychological and material resources intended to benefit an individual’s ability to cope with stress” (Cohen, 2004, p. 676). While there have been a variety of approaches to the study of social support (Berkman, Glass, Brissette, & Seeman, 2000; Due, Holstein, Lund, Modvig, & Avlund, 1999; House, Umberson, & Landis, 1988), the majority of research has focussed on examining the structure and function of social networks in impacting health and well-being. Structure refers to factors such as the size of the social network and frequency of social contacts. Function refers to the degree to which these

relationships serve particular functions for the individual (Sherbourne & Stewart, 1991). Many attempts have been made to categorize different aspects of functional social support and there is no clear consensus as to the best way to do this. However, three types of functional social support commonly discussed are: instrumental support, emotional support, and informational support (Cohen, 2004). Instrumental support, also often termed tangible support, refers to the provision of material assistance, such as financial help. Emotional support refers to aspects of support such as caring and reassurance as well as providing a supportive environment for emotional expression. Informational support involves the provision of advice or guidance that will assist in problem solving. In addition to these three aspects, a variety of other functions of social support have been proposed, such as affection and positive social interactions (Sherbourne & Stewart, 1991).

Social Support and Mental Health

While the mechanisms by which social support impacts health and well-being are widely debated, it is generally thought that “supportive relationships directly provide something that people need to stay healthy or to adapt to stress” (House, Umberson et al., 1988, p. 302). Among older adults, higher levels of social support have been linked with both better physical health (House, Landis, & Umberson, 1988; Tomaka, Thompson, & Palacios, 2006) and better mental health (Glass, Mendes de Leon, Bassuk, & Berkman, 2006). With respect to older adults’ mental health, social support has been negatively associated with the presence of mental disorders such as psychosis (Berry, Barrowclough, Byrne, & Purandare, 2006) and dementia (Fratiglioni, Wang, Ericsson, Maytan, & Winblad, 2000). The majority of the research in this area, however, has

focused on depression. Research examining depressive symptoms among older adults has found that greater numbers of depressive symptoms are associated with lower levels of social engagement (Glass et al., 2006) and social support (Vanderhorst & McLaren, 2005), and lower levels of perceived togetherness in social interactions (Tikkainen & Heikkinen, 2005). In a study of 224 Canadian older adults, functional social support was directly and negatively associated with depression (Greenglass, Fiksenbaum, & Eaton, 2006). A longitudinal study examining the social networks of older adults with major depression over five years found that social network size and frequency of social interaction were low at baseline and remained low over time (Voils et al., 2007). Interestingly, however, in a longitudinal study of 2,806 older adults, perceived adequacy of emotional and tangible support were stronger predictors of depressive symptoms after three years than were social network variables including network size, frequency of contact, kinship, and presence of a confidant (Oxman, Berkman, Kasl, Freeman, & Barrett, 1992).

In contrast to the growing research base regarding social support among older adults with depressive symptoms, very little research in this area has focused on older adults with anxiety. However, the research that has been conducted suggests that social support is an important factor for this population. A large study of older adults, aged 70 to 79, found that those who reported needing more emotional support were twice as likely to have anxiety symptoms compared with those who did not feel they needed more emotional support (Mehta et al., 2003). A longitudinal study of older adults found that an increase in anxiety symptoms over three years was associated with less emotional support but not with social network size (de Beurs et al., 2001). Another study examining social

networks in community dwelling adults aged 65 and older, found that lower levels of social engagement were related to the presence of generalized anxiety disorder (Golden, Conroy, & Lawlor, 2009). Similarly, a population study of older adults in The Netherlands found that those with anxiety disorders had smaller social networks and higher levels of loneliness compared with those without anxiety disorders (Beekman et al., 1998). Interestingly, tangible support and emotional support were not associated with the presence of an anxiety disorder. The authors suggest that the role of social support in the aetiology of anxiety disorders is “ambiguous”, as some types of support may be of assistance for one person and a stressor for another. In addition, when examining specific anxiety disorders, they found that emotional support was associated with having a phobic disorder (i.e., social phobia or a specific phobia), but not with generalized anxiety disorder, panic disorder, or obsessive-compulsive disorder. These studies have begun to examine the role of social support in the lives of older adults with anxiety, but clearly further research is necessary in order to understand these complex relationships.

In research not specific to older adults, anxiety disorders have been found to be negatively associated with many aspects of quality of life including contact with friends and perceived social support (Cramer, Torgersen, & Kringlen, 2005). Studies also indicate that these relationships may differ depending on the type of anxiety disorder. For example, Torgrud et al. (2004) examined perceived social support among individuals with social phobia compared with healthy controls as well as several clinical and non-clinical samples reported in the research literature. In this study, individuals with social phobia reported lower levels of perceived social support compared with all of the other groups, including those with generalized anxiety disorder. The authors suggest that the

inherent social nature of social phobia likely plays a large role in these findings. In particular, the tendency for individuals with social phobia to have a negative cognitive bias towards social interactions and a tendency to engage awkwardly in social interactions may decrease the level of social support they receive from others. Another study examining the relationships between social support and a variety of neurotic symptoms found that low perceived social support was related to higher levels of worry and panic symptoms, but not related to phobias or obsessive-compulsive symptoms (Brugha et al., 2003). In addition, a study found that social phobia and simple phobia were related to low social support, whereas agoraphobia was not (Magee, Eaton, Wittchen, McGonagle, & Kessler, 1996). Taken together, these findings suggest that social support has a particularly important role in social phobia, and highlight the need to examine potential differences in perceived social support among older adults with various anxiety disorders.

Social Support and Mental Health Service Use

Previous findings of relationships between social support variables and mental disorders also suggest that social support may play an important role in whether or not these individuals use mental health services. The behavioural model of health services use (Andersen, 1995, 2008) is often used to guide the examination of correlates of mental health service utilization. Within this model are three categories of individual characteristics thought to influence service use: predisposing characteristics, enabling resources, and need for care. According to this model, social support variables are enabling resources that can either support or hinder one's access to mental health services. Based on this idea, the second aim of this study was to examine various aspects

of social support as enabling factors in the use of mental health service use among individuals with anxiety disorders and to explore whether these relationships change with increasing age.

Recent research has begun to explore the role of social support as a correlate of mental health service use in various populations. For example, a longitudinal study examining social support and mental health service use among the Dutch general population, aged 18 to 64 years, found that living alone and having low perceived social support were both associated with higher levels of service use (ten Have, Vollenbergh, Bijl, & Ormel, 2002). This study also found that both of these variables intensified the effect of the presence of a mental disorder on the use of mental health services. Similarly, another longitudinal study including individuals aged 30 and older from the Baltimore cohort of the Epidemiological Catchment Area study found increased social support to be associated with a decrease in the use of formal mental health services across mental health conditions including major depression, generalized anxiety disorder, panic disorder, and alcohol abuse (Maulik, Eaton, & Bradshaw, 2009). Additionally, a large population study in Norway, including those aged 20 to 89 years old, found that those who reported not having enough good friends were more frequent help seekers (Rones, Mykletun, & Dahl, 2005). Albert, Becker, Mccrone, and Thornicroft (1998) conducted a literature review of studies examining the relationships between social networks, social support, and mental health service use among individuals with severe mental illnesses, including schizophrenia, schizo-affective disorder, bipolar disorder, major depression, and delusional disorder. They found that many of the studies demonstrated that lower levels of social support were associated with more frequent hospitalization for these

individuals. However, the authors note that some types of social support, such as having a friend who is knowledgeable about psychiatric services, were associated with higher levels of outpatient service use. Taken together, these results indicate that social support may be an important correlate of mental health service use. However, little is known about whether this relationship holds specifically for individuals with anxiety disorders.

As well, there has been limited research examining the relationships between social support and mental health service use specifically among older adults.

Unfortunately, many of the population studies mentioned above did not include older adults (ten Have et al., 2002) or did not examine possible interactions between age and social support (Maulik et al., 2009; Roness et al., 2005). However, one study examining religiosity and mental health service use among older adults also included a social support variable (Pickard, 2006). This study found that social support, as measured by interviewer rated level of social resources, was negatively related to service use. Also, a prospective examination of factors influencing mental health service use in older adults compared 120 adults, 55 years of age and older, who reported both needing and seeking mental health services to a control group of 120 older adults who reported not needing services (Phillips & Murrell, 1994). This study found that those who sought mental health services had lower levels of perceived help available to them in the event of a crisis. Interestingly, social integration (i.e., current social contact and participation) was not associated with help seeking in this study. In explaining this discrepancy, the authors suggest that the perceived availability of social support is likely related to the distress associated with help seeking, and that frequency and amount of social contact is unrelated to this distress. The lack of common definitions of social support makes it difficult to

draw clear conclusions from the results of existing research. However, these findings do suggest that perceptions of social support likely play a particularly important role in mental health service use by older adults and highlight the importance of examining the various types of social support with respect to service use.

Hypotheses

The first aim of the present study was to examine social support among older adults with anxiety disorders using a nationally representative sample of Canadians. The research reviewed above suggests that social support is negatively associated with the presence of anxiety disorders, particularly social phobia. Socioemotional selectivity theory (Carstensen, 1992) would suggest that those aspects of social support involving emotional experiences are likely to be particularly important to the mental health of older adults. Therefore, we hypothesized that the presence of an anxiety disorder would be negatively associated with emotional/informational support and affection, but not associated with positive social interaction, tangible support, or social network size. We also examined the relationships between the social support variables and the presence of three types of anxiety disorders in older adults: social phobia, agoraphobia, and panic disorder. Given the social component of social phobia, we expected it to be more strongly related to all types of social support than panic disorder and agoraphobia.

The second aim of this study was to examine the relationship between social support and mental health service use among individuals with anxiety disorders. Existing research suggests that perceived functional support plays a particularly important role in this relationship. Therefore, we hypothesized that levels of functional support (i.e., emotional/informational support, affection, positive social interaction, and tangible

support) would be negatively related to mental health service use and that social network size would not be related to service use. In addition, socioemotional selectivity theory (Carstensen, 1992) suggests that the relationship between mental health service use and emotional aspects of social support is likely stronger for older adults than for younger adults. Given this, we hypothesized that age would interact with emotional/informational support and affection in predicting mental health service use. That is, there would be lower levels of mental health service use, given older age, in those with higher levels of these types of functional social support. We also predicted that age would not interact with positive social interaction, tangible support, or social network size in predicting service use.

Methods

Sample

The data for this study came from the Canadian Community Health Survey-Mental Health and Well-Being (CCHS-1.2), which is a cross-sectional, nationally representative survey of Canadians. Statistics Canada conducted the survey over the course of eight months, beginning in May 2002. The final sample included 36,984 individuals living in private dwellings in the ten Canadian provinces. Residents of the three Canadian territories, those living on Indian Reserves, Crown Lands, or in institutions, full-time members of the Canadian Armed Forces, and residents of certain remote regions of Canada were not included in the survey. Respondents were selected for participation using a multistage stratified cluster design. The national response rate of the CCHS-1.2 was 77%. For further information regarding this survey see Gravel and Beland (2005).

As was the case in other research involving anxiety disorders among older adults (Cairney et al., 2007; Mackenzie, Reynolds, Chu, Pagura, & Sareen, in press), we defined older adults in this study as those 55 and older, in order to increase the sample size and allow for comparison between young-old, middle-old, and old-old groups. Using this age rather than the traditional cut-off of 65 years is reasonable given that individuals are increasingly retiring before that age or continuing to work until much later in life.

Measures

Anxiety Disorders. Diagnoses in the CCHS-1.2 were based on the World Mental Health-Composite International Diagnostic Interview (WMH-CIDI; Gravel & Beland, 2005). The WMH-CIDI is a lay-administered survey that generates lifetime and past-year mental disorders based on partial criteria of the fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-IV, American Psychiatric Association, 1994). The WMH-CIDI was modified for the CCHS-1.2 to lessen response burden and for clarification purposes. The anxiety disorders included in the CCHS-1.2 were panic disorder, social phobia, and agoraphobia. For this study, we coded those respondents meeting the criteria for at least one of these disorders in the past 12 months as having a past-year anxiety disorder. When comparing those with anxiety disorders to individuals with no mental disorder we excluded those who met criteria for past-year major depression, mania, or substance dependence as determined by the CCHS-1.2 WMH-CIDI diagnostic algorithms.

Social Support. The Medical Outcomes Study (MOS)-Social Support Survey (Sherbourne & Stewart, 1991) assessed perceived social support. The MOS-Social Support Survey consists of 1 item measuring structural social support and 19 items

measuring functional social support. The structural support item asks: “About how many close friends and close relatives do you have, that is people you feel at ease with and can talk to about what is on your mind?”

For the functional social support items, respondents rated how often a particular type of social support was available to them if they needed it. Respondents rated the items on a 5-point scale ranging from “none of the time” to “all of the time”. The MOS-Social Support Survey provides four subscale scores representing separate dimensions of functional social support. These dimensions include emotional/informational support (e.g., “someone to confide in or talk to about yourself or your problems”; “someone whose advice you really want”), tangible support (e.g., “someone to take you to the doctor if you needed it”), positive social interaction (e.g., “someone to do something enjoyable with”), and affection (e.g., “someone who shows you love and affection”).

The MOS-Social Support Survey has demonstrated excellent internal consistency for each of the subscales (alphas = 0.91 to 0.96). The subscales also have good convergent validity (e.g. correlations with loneliness = -0.53 to -0.69) and discriminant validity (e.g., correlations with physical functioning = 0.08 to 0.15; Sherbourne & Stewart, 1991).

Mental Health Service Use. Past-year mental health service use was determined by asking respondents if they had seen or talked on the telephone to a professional about their “emotions, mental health or use of alcohol or drugs in the past year”. Mental health service providers included: “family doctor or general practitioner”, “other medical doctor”, “psychiatrist”, “psychologist”, “nurse”, and “social worker, counsellor or psychotherapist”. We coded all respondents who reported having seen at least one of

these professionals in the past 12 months as past-year service users.

Control Variables. Analyses included age, gender, marital status, income and education as control variables based on previous work examining factors influencing the use of mental health services (Bijl & Ravelli, 2000; Goodwin & Andersen, 2002; Issakidis & Andrews, 2002). We included gender as a dichotomous variable and categorized marital status into married/common-law relationship versus not currently married (i.e., widowed, separated, divorced, or never married). We included income, education, and age as continuous variables. However, we categorized age when exploring its interaction with social support in predicting mental health service use. We also categorized age, income, and education for descriptive purposes.

Analytic Strategy

For all of the analyses, we applied the appropriate weights provided by Statistics Canada to ensure that the sample was representative of the Canadian population. Associations are represented by odds ratios (OR) with corresponding 95% confidence intervals (95% CI) and employ bootstrapping techniques using the weights provided by Statistics Canada. All reported percentages are weighted. We used SUDAAN software to conduct all analyses (RTI International, 2008) and obtained the data for this study from the CCHS-1.2 Master File maintained at the Statistics Canada Research Data Centre located in Winnipeg, Manitoba, Canada.

A series of logistic regressions tested the hypotheses that smaller social networks and lower levels of emotional/informational support and affection would be associated with the presence of an anxiety disorder in older adults. For these analyses, the dependent variable was the presence of an anxiety disorder (i.e., anxiety disorder vs. no mental

disorder) and the independent variables were social network size, emotional/informational support, affection, tangible support, and positive social interaction. We performed separate logistic regression analyses for each of the individual social support variables, as the variables were highly correlated and, therefore, multicollinearity was a problem. We then reran all of these models adjusting for the control variables. Similarly, a series of logistic regression analyses examined the various social support variables as predictors of each of the three anxiety disorders (i.e., social phobia vs. no mental disorder; agoraphobia vs. no mental disorder; and panic disorder vs. no mental disorder).

Finally, a series of logistic regression analyses examined the role of social support variables in predicting mental health service use among individuals with anxiety disorders. We included all CCHS-1.2 respondents 18 years of age and older who met the criteria for at least one anxiety disorder within the past year in these analyses. Logistic regression models predicted mental health service use from each of the social support variables along with age and the control variables mentioned above. We then explored possible interactions between age and social support by re-running these analyses including interaction terms. In order to allow for a useful interpretation of the results, we centred each of the social support variables and categorized age into seven categories (18-24, 25-34, 35-44, 45-54, 55-64, 65-74, and 75+). The final interaction terms were: age x social network size, age x emotional/informational support, age x affection, age x tangible support, and age x positive social interaction.

Results

Social Support and Anxiety Disorders in Older Adults

The first objective of this study was to examine social support among adults with

anxiety disorders who were 55 years of age and older. Among the 12,792 older adults in the CCHS-1.2, 279 (2.5%) met the criteria for at least one of the three anxiety disorders within the past year. Table 1 provides demographic information for this group and the comparison group of 11,510 (94.5%) of individuals who did not meet criteria for any of mood, anxiety, or substance disorders assessed in the CCHS-1.2 in the past year. The average rating on each of the social support scales for the two groups is presented in Table 2. This table also presents logistic regression results testing the hypothesis that the presence of an anxiety disorder would be negatively related to two of the four types of functional social support: emotional/informational support and affection. This hypothesis was only partially confirmed; the presence of an anxiety disorder was negatively related to each type of functional social support, even when controlling for the effects of age, gender, marital status, education, and income. As predicted, the presence of an anxiety disorder was not related to social network size, a measure of structural social support.

The results in Table 3 indicate that, as expected, levels of functional social support were negatively associated with the presence of social phobia whereas structural social support was not related. In the case of panic disorder, tangible support and emotional/informational support were the only significant predictors of the presence of the disorder. Finally, none of the measures of functional or structural social support were related to the presence of agoraphobia.

Social Support and Mental Health Service Use

The second objective of this study was to examine the relationship between social support and mental health service use among all individuals with a past-year anxiety

disorder ($N = 1,713$) and the potential interaction of age in these relationships. Logistic regression analyses predicted the use of mental health services in the past year from each of the five social support variables, adjusting for the demographic control variables. Two of the measures of functional social support were significant predictors of the use of mental health services: emotional/informational support (AOR= 0.98; 95% CI = 0.96-1.00; $p = 0.03$) and positive social interaction (AOR= 0.94; 95% CI = 0.90-0.98; $p < 0.01$). Tangible support, affection, and social network size did not predict the use of mental health services (Wald $F(6,500)$ values < 3.45 , p values > 0.06).

With regard to age and social support, Table 4 presents the mean ratings of each of the social support variables for each age category. In order to test the hypotheses that age would interact with emotional aspects of social support in predicting service use, we reran the previous logistic regression analyses including interaction terms between age and each of the social support variables. Only the interaction between tangible social support and age was significant (AOR = 1.03; 95% CI = 1.01-1.06; $p = 0.02$). To examine this interaction, we ran a series of logistic regression analyses predicting the use of mental health services by tangible support for each of the age categories. In these analyses, tangible support was negatively related to service use for those 18-24 years of age, Wald $F(1,500) = 10.37$, $p = 0.001$, and 25-34, Wald $F(1,500) = 5.90$, $p = 0.02$. This relationship was not significant for those in the other six age categories, Wald $F(1,500)$ values < 1.30 , p values $> .25$).

While none of the other interactions were significant, with Wald $F(4, 500)$ values < 1.09 and p values $> .29$, examination of the data suggested that there may have been a curvilinear relationship between age and social support, and that this interaction might

have been missed by using the product interaction terms. To explore this possibility, we examined the correlations between the social support variables and mental health service use separately for three age groups (i.e., 18-39, 40-64, and 65+; see Table 5). We then used Fisher's *r*-to-*z* transformations and used *z* statistics to compare the correlations coefficients. Of the 15 comparisons, only the correlations between emotional/informational support and service use for those in the 18-39 age group compared to the 40-64 year old category were significantly different ($z = -2.36, p < 0.01$). The lack of significant differences between nearly all of the correlations coefficients, suggests the absence of significant curvilinear relationships.

Discussion

The results of this study indicate that older adults meeting criteria for a past-year anxiety disorder have lower levels of perceived functional social support than those without a mental disorder. This was true for emotional/informational support, tangible support, affection, and positive social interactions. These results are consistent with previous findings of relationships between functional aspects of social support and depression among older adults (Greenglass et al., 2006; Vanderhorst & McLaren, 2005) and among adults with anxiety disorders in the general population (Cramer et al., 2005). These findings are particularly important in considering the quality of life of older adults with anxiety disorders. Social support has been negatively related to many aspects of physical health (Bowling, 1991; Tomaka et al., 2006) and to mortality (Blazer, 1982) in older adults. Many argue that social support acts as a buffer against the negative impact of stress on both physical and mental health (House, 1987). In fact, in the case of depression, Blazer (2005) points out that while research suggests greater biological

vulnerability to depression in older adulthood, the prevalence of the disorder decreases with age. He suggests that this indicates that social factors may be more protective in older adulthood than in mid-life. These findings also highlight the importance of decreasing social isolation and loneliness in older adults with anxiety disorders both as a way to prevent anxiety disorders, and as a way to help treat them once they exist.

Due to the correlational nature of the present study, it cannot determine a causal direction of the relationship between social support and anxiety disorders. However, with regard to older adults and depression, a longitudinal study found that satisfaction with social support at baseline predicted depressive symptoms a year and a half later (Krause, Liang, & Yatomi, 1989). Similarly, a longitudinal study of older adults over six months found that social support at baseline was related to subsequent depressive symptoms, but only for those with high levels of stress (Cutrona, Russell, & Rose, 1986). Further longitudinal research is necessary to determine if baseline social support is predictive of the development of anxiety over time in older adults, and also if baseline anxiety affects social support over time. Regardless, the present results do indicate that social support among older adults with anxiety disorders is an important area for both research and intervention. This is especially true given recent findings that both the presence of an anxiety disorder and lower levels of social support are related to the occurrence of suicidal ideation among older adults (Corna, Cairney, & Streiner, 2010).

The finding of significant relationships between the presence of an anxiety disorder and all four types of functional social support indicates that this relationship is broader than expected. Based on the idea from socioemotional selectivity theory (Carstensen, 1992) of a greater emphasis on emotionally satisfying relationships in older

adulthood, we expected that aspects of social support involving emotional experiences would have stronger associations with mental health among older adults. That this expectation was not confirmed suggests that other functions of social support, such as physical assistance, remain important factors for mental health in late-life. However, given that the social support measure included in the CCHS-1.2 may not adequately differentiate aspects of social support which have more emotional value for older adults, further research in this area is recommended.

While there has been very little research examining social support and anxiety disorders among older adults with which to compare our results, one study found that levels of instrumental support (i.e., tangible support) and emotional support were not lower for older adults with anxiety disorders compared with those without these disorders (Beekman et al., 1998). The reason for this discrepancy is not clear, although one possible reason is that the majority of those included in the study by Beekman and colleagues had generalized anxiety disorder (GAD), which was not assessed in the present study. It is possible that functional social support is less relevant to individual with GAD than those with other anxiety disorders. In support of this suggestion, one study found that social support did not predict quality of life among a sample of older adults with GAD (Bourland et al., 2000). Similarly, a recent study of university undergraduates found that perceived social support did not differ between those with GAD and controls (Eng & Heimberg, 2006).

The CCHS-1.2 provides data for three types of anxiety disorders: social phobia, agoraphobia, and panic disorder. As expected, each type of functional social support was negatively associated with the presence of social phobia. These findings are consistent

with those found for individuals with social phobia in the general population (Davidson, Hughes, George, & Blazer, 1993; Furmark et al., 1999; Torgrud et al., 2004), and suggests that, regardless of age, those with social phobia perceive their social networks as less supportive than those without the disorder. Once again, although causal inferences are not possible it is likely that socially anxious individuals are less likely to develop supportive social networks.

With respect to panic disorder, tangible support and emotional/informational support were negatively related to the presence of the disorder, whereas positive social interactions and affection were not. This supports a recent study which found that lower levels of social support predicted greater severity of panic symptoms among individuals with panic disorder (Huang, Yen, & Lung, 2010). However, it is interesting that only two of the four types of functional support were significant predictors of panic in our study. Previous research has found that individuals with panic were more likely to use “seeking social support” as a coping strategy than those with other anxiety disorders and compared to controls (Vollrath & Angst, 1993). This focus on social support as a means of getting help in dealing with symptoms suggests that these individuals may place more emphasis on tangible aspects of support in evaluating their support systems. This may explain why tangible support and emotional/informational support from others were related to panic disorder and affection and positive social interactions were not.

Interestingly, none of the functional social support variables examined in the present study were related to agoraphobia, which is consistent with prior research (Magee et al., 1996). Similarly, a study examining anxiety disorders and quality of life, which included a number of indicators of social support, found that agoraphobia was not related

to reduced contact with family or friends (Cramer et al., 2005). Prior to these studies, a literature review examining social support and agoraphobia found little consensus in the research, with some studies finding a relationship and other not (Fokias & Tyler, 1995). This review points out that there is wide variety in the types of social interactions of individuals with agoraphobia. The authors suggest that some may see their loved ones as a “safe haven”. This would suggest that, in some cases, the social support received by these individuals may actually be reinforcing their avoidance behaviours and assisting in the maintenance of the disorder.

With regard to structural social support, as predicted, the number of close family and friends in the older adults’ social network was not related to the presence of any of the anxiety disorders we examined. That is, older adults with anxiety disorders did not have smaller social networks compared to those without a mental disorder. Additionally, when the anxiety disorders were examined individually, social network size was not a significant predictor of social phobia, panic disorder, or agoraphobia. These results are consistent with a number of studies examining social network variables and mental health of older adults (de Beurs et al., 2001; Oxman et al., 1992). It is possible that having an anxiety disorder does not increase older adults’ risk of social network reduction beyond that which would be generally expected as they age. However, these findings also contradict those of Beekman and colleagues (1998) who found smaller social network sizes in older adults with anxiety disorders, and those of Frank Dahl and Dahl (2010) who found that adults aged 30 to 45 with high levels of social phobia symptoms had smaller social networks than controls. Different methodology in estimating social network size may account for this discrepancy. Further research examining the social networks of

older adults with anxiety disorders may help to clarify these differences.

The second aim of the present study was to examine the relationships between different aspects of social support and mental health service use among individuals with anxiety disorders. We hypothesized that service use would be negatively related to all four types of functional social support and would not be related to structural social support (i.e., social network size). The data partially supported this hypothesis. Two of the measures of functional social support, emotional/informational support and positive social interaction, were significant predictors of the use of mental health services in the direction we hypothesized. However, tangible support and affection did not predict service use. With regard to structural social support, as predicted, social network size was not related to service use.

These findings add to a growing research base indicating an important relationship between lower levels of social support and increased use of mental health services (Maulik et al., 2009; Roness et al., 2005; ten Have et al., 2002). It also gives us some insight into the aspects of social support that may be particularly important to this relationship. It is interesting that tangible support did not predict the use of services. One might expect that individuals with anxiety disorders who lack in the more “practical” aspects of social support, such as having someone to take them to appointments, would be less likely to use services. That was not the case in this study. In contrast, having lower levels of both emotional/informational support and positive social interactions did predict the use of services. It is possible that those with greater levels of these types of social support have less need for mental health services. These findings also support the suggestion by ten Have and colleagues (2002) that mental health services may be used as

a partial substitute for social support. If this is the case, one might expect that this would be particularly true for emotional support and positive social interactions. Given this possibility, anxiety treatment programs will likely benefit from emphasizing the development of social networks and social skills training in treatment of these individuals. On the other hand, these findings may raise concerns regarding long-term psychotherapy for older adults with lower levels of social support, as these individuals may be reluctant to terminate services with supportive clinicians despite improvement in anxiety symptoms.

Finally, this study examined the possible interactions between age and the various types of social support in predicting the use of mental health services. Based on socioemotional selectivity theory (Carstensen, 1992), we expected that the relationship between mental health service use and emotional aspects of social support would be stronger for older adults than for younger adults. However, only the interaction between age and tangible support was significant, with lower levels of tangible social support related to higher levels of mental health service use among younger adults (aged 18-34) but not for older adults. The reason for this is not clear. Perhaps for at least some of those in the older age groups, the tangible support they receive may actually enable their access to mental health services (e.g., provide transportation to appointments). This aspect of tangible support may counterbalance any buffering effects that tangible support may have on the need for mental health services. These results may also be an indirect indicator of how the members of older adults' social networks react to their use of mental health services. Findings of an increase in positive help-seeking attitudes across the lifespan (Mackenzie, Scott, Mather, & Sareen, 2008) suggest that the older adults with anxiety

may be encouraged to seek services by those in their social networks. Future research in this area is needed to clarify the influence of social networks on mental health service use later in life.

A significant strength of the present study is that the CCHS-1.2 includes a large sample of older adults compared to previous surveys in the United States (Kessler et al., 2004) and other countries (Alonso et al., 2004; Andrews, Henderson et al., 2001). This made it possible to conduct relatively detailed analyses despite low prevalence rates of anxiety disorders among older adults. However, there are also some limitations associated with using this data. For instance, in order to reduce response burden, only social phobia, agoraphobia, and panic disorder were assessed in the survey. The absence of other anxiety disorders, particularly generalized anxiety disorder, excludes a significant subgroup of older adults with anxiety problems. Therefore, caution should be used when generalizing these findings to older adults with specific phobias, GAD, PTSD, and OCD. The data are also self-reported and therefore susceptible to memory bias and recall errors. In addition, lay interviewers diagnosed the mental disorders, and it is likely that diagnoses made by trained clinicians would be more valid. Finally, the CCHS-1.2 only surveyed community dwelling individuals, therefore, these findings are not generalizable to institutionalized older adults, such as those living in personal care homes, who may have very different experiences of social support than older adults living in the community.

A main goal of this study was to examine the structure and function of social support among older adults with anxiety disorders. The results indicate that functional aspects of social support are related to the presence of an anxiety disorder among older

adults, whereas structural support, as measured by social network size, is not. This study also indicates that, among individuals with anxiety disorders, lower levels of perceived emotional/informational support and positive social interactions are related to greater use of mental health services for young and old alike. These findings highlight the importance of assessing social support and providing social skills training as elements of anxiety treatment programs for older adults.

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Table 1

Demographic information for older adults with a past-year anxiety disorder and those with no past-year anxiety disorder, mood disorder, or substance dependence

	Anxiety Disorder	No Disorder
	N (%) ^a	N (%) ^a
Sex		
Male	90 (41.4)	4806 (47.0)
Female	189 (58.6)	6704 (53.0)
Age		
55-64	172 (65.8)	4442 (45.1)
65-74	70 (23.2)	3738 (32.3)
75+	37 (11.0)	3330 (22.7)
Marital Status		
Married/common-law	142 (63.4)	6194 (69.0)
Not currently married	137 (36.6)	5307 (31.0)
Income		
<15,000	63 (14.8)	1863 (11.1)
15,000-29,999	77 (23.6)	3229 (25.5)
30,000-49,999	53 (22.7)	2562 (27.3)
50,000+	63 (39.0)	2697 (36.1)
Education		
Less than secondary graduation	115 (34.5)	4993 (39.8)
Secondary graduation	45 (22.7)	1692 (16.6)

Some post-secondary	18 (8.4)	624 (5.4)
Post-secondary degree/diploma	99 (34.3)	4130 (38.2)

^aReported Ns are for the sample, whereas percentages are weighted to be representative of the Canadian population. N's for the two groups may not be equal to final sample due to missing data.

Table 2

Logistic regression analyses predicting the presence of an anxiety disorder among older adults from social support variables

	Anxiety Disorder (N=279)	No Disorder (N=11,510)	OR (95% CI)	t^b	AOR ^a (95% CI)	t^b
	Mean ± SD	Mean ± SD				
Functional Social Support						
Tangible support ^c	12.4 ± 5.5	13.7 ± 5.4	0.92 (0.89-0.95)	- 4.56*	0.92 (0.88-0.96)	- 3.44*
Affection ^c	9.4 ± 4.8	10.6 ± 3.2	0.87 (0.83-0.92)	- 4.93*	0.86 (0.80-0.92)	- 4.14*
Positive social interaction ^c	12.1 ± 5.7	13.7 ± 4.3	0.90 (0.87-0.93)	- 5.62*	0.88 (0.84-0.93)	- 4.68*
Emotional/ informational support ^c	24.0 ± 9.5	27.0 ± 9.7	0.95 (0.93-0.96)	- 6.07*	0.95 (0.93-0.97)	- 5.01*
Structural Social Support						
Social network size	6.2 ± 10.0	8.1 ± 11.8	0.96 (0.92-1.01)	- 1.69	0.96 (0.92-1.01)	- 1.47

Note. SD= standard deviation; OR = odds ratio; AOR = adjusted odds ratio, CI = confidence interval.

^a Odds ratios are adjusted for age, gender, marital status, education, and income. ^bWald t tests with $df = 500$.

^c Range of scales: tangible support = 0 to 16; affection = 0 to 12; positive social interaction = 0 to 16; emotional/ informational support = 0 to 32.

* $p < 0.001$

Table 3

Logistic regression analyses predicting the presence of anxiety disorders by type of social support for older adults

	Social phobia vs. No Disorder				Panic Disorder vs. No Disorder				Agoraphobia vs. No Disorder			
	OR		AOR ^a		OR		AOR ^a		OR		AOR ^a	
	(95% CI)	<i>t</i> ^b	(95% CI)	<i>t</i> ^b	(95% CI)	<i>t</i> ^b	(95% CI)	<i>t</i> ^b	(95% CI)	<i>t</i> ^b	(95% CI)	<i>t</i> ^b
Functional Social Support												
Tangible support	0.89 (0.86- 0.93)	-5.17**	0.88 (0.83- 0.94)	-4.04**	0.95 (0.88- 1.01)	-1.55	0.92 (0.85- 1.00)	-2.04*	0.99 (0.91- 1.07)	-0.30	1.06 (0.94- 1.19)	0.97
Affection	0.84 (0.80- 0.88)	-6.81**	0.81 (0.76- 0.87)	-6.29**	0.91 (0.76- 1.08)	-1.07	0.84 (0.68- 1.04)	-1.59	0.91 (0.81- 1.01)	-1.74	1.01 (0.87- 1.18)	0.20
Positive social interaction	0.86 (0.82- 0.90)	-6.64**	0.84 (0.79- 0.89)	-5.77**	0.95 (0.88- 1.02)	-1.25	0.92 (0.84- 1.00)	-1.62	0.93 (0.86- 1.00)	-1.67	0.98 (0.87- 1.09)	-0.39

	0.90)		0.89)		1.03)		1.02)		1.01)		1.10)	
Emotional/ informational support	0.93 (0.91- 0.95)	-6.71**	0.93 (0.91- 0.95)	-5.60**	0.97 (0.93- 1.00)	-1.99*	0.96 (0.92- 1.00)	-2.15*	0.97 (0.93- 1.01)	-1.45	0.99 (0.94- 1.04)	-0.40
Structural Social Support												
Social network size	0.94 (0.88- 1.01)	-1.79	0.94 (0.87- 1.01)	-1.64	0.95 (0.88- 1.01)	-1.56	0.95 (0.87- 1.02)	-1.42	1.00 (0.92- 1.08)	-0.10	1.00 (0.93- 1.09)	0.10

Note. OR = odds ratio; AOR = adjusted odds ratio, CI = confidence interval.

^a Odds ratios are adjusted for age, gender, marital status, education, and income. ^bWald t tests with *df* = 500.

** $p < 0.001$ * $p < 0.05$

Table 4

Ratings of social support variables by age for adults with a past-year anxiety disorder (Mean \pm SD)

	Age						
	18-24 (N=304)	25-34 (N=387)	35-44 (N=428)	45-54 (N=315)	55-64 (N=172)	65-74 (N=70)	75+ (N=37)
Functional Social Support							
Tangible support ^c	12.7 \pm 4.4	12.0 \pm 5.7	11.7 \pm 5.6	11.3 \pm 5.1	12.4 \pm 5.4	12.0 \pm 5.4	12.8 \pm 4.7
Affection ^c	9.9 \pm 3.5	9.8 \pm 4.1	9.7 \pm 3.9	9.2 \pm 4.3	9.3 \pm 5.1	9.5 \pm 3.5	9.8 \pm 4.3
Positive social interaction ^c	12.7 \pm 4.4	12.3 \pm 5.7	11.9 \pm 5.6	11.7 \pm 4.8	12.2 \pm 4.9	11.6 \pm 6.9	12.7 \pm 5.7
Emotional/ informational support ^c	25.0 \pm 8.4	24.3 \pm 10.4	23.7 \pm 10.6	23.2 \pm 9.6	23.6 \pm 9.7	24.0 \pm 7.6	25.7 \pm 9.2
Structural Social Support							
Social network size	5.8 \pm 5.9	6.4 \pm 9.2	5.7 \pm 8.9	5.4 \pm 7.1	6.1 \pm 11.3	6.0 \pm 5.4	6.8 \pm 5.8

Note. SD = standard deviation.

^cRange of scales: tangible support = 0 to 16; affection = 0 to 12; positive social interaction = 0 to 16; emotional/ informational support = 0 to 32.

Table 5

Correlations between the use of mental health services and different types of social support for adults with a past-year anxiety disorder by age group

	Age 18-39		Age 40-64		Age 65+	
	N=853		N=702		N=102	
	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>	<i>r</i>	<i>p</i>
Tangible support	-0.16	<0.001	-0.08	0.04	-0.14	0.17
Affection	-0.11	<0.001	-0.07	0.07	-0.17	0.08
Positive social interaction	-0.18	<0.001	-0.10	0.01	-0.19	0.05
Emotional/informational support	-0.16	<0.001	-0.04	0.30	-0.10	0.33
Number of close friends and relatives	-0.08	0.02	-0.08	0.04	0.01	0.88

Note. *r* = Pearson correlation

CHAPTER FOUR

Treatment Satisfaction, Perceived Treatment Effectiveness, and Dropout
among Older Users of Mental Health Services

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Abstract

Objectives: Little is known about how older adults perceive the mental health services they receive or about rates of treatment dropout among older individuals. This study examines treatment satisfaction, perceived treatment effectiveness, and dropout rates among older users of mental health services, and the individual characteristics associated with these outcomes. **Method:** The authors used data from the Canadian Community Health Survey-Mental Health and Well-Being (CCHS-1.2), a nationally representative survey of community-dwelling Canadians. This study examined the prevalence of treatment outcomes in both the specialty mental health and general medical sectors by adults aged 55+ (N = 12,792). Logistic regression analyses examined predictors of treatment outcomes. **Results:** The majority of older adults were satisfied with services (88.5%) and perceived the treatment to be effective (83.6%). Only 15.5% of older mental health service users dropped out of treatment in the past year. These treatment outcomes did not differ between the general medical and specialty mental health sectors. In the final logistic regression models, higher levels of social support predicted both greater treatment satisfaction and perceived effectiveness. Treatment satisfaction and effectiveness were the only significant predictors of dropout. **Conclusion:** Older adults are generally satisfied with their mental health treatment and perceive this treatment to be effective. Social support appears to be an important factor in these outcomes, but has been largely absent from previous research. While individual characteristics do not appear to be strong predictors of dropout, treatment satisfaction and effectiveness are. Given the relatively weak relationships between treatment outcomes and individual characteristics, outcome may be affected to a greater extent, by contextual characteristics.

The use of mental health services by older adults is receiving increased attention among mental health researchers and policy makers (Bartels, 2003). Researchers have begun to examine factors such as help-seeking behaviours among older adults (Roness, Mykletun, & Dahl, 2005), and the likelihood of older adults receiving treatment for mental health needs (Cairney, Corna, & Streiner, 2010; Karlin & Norris, 2006; Mackenzie, Pagura, & Sareen, 2010; Sareen, Cox, Afifi, Yu, & Stein, 2005; P. S. Wang et al., 2005). However, a largely unexamined aspect of mental health service in general, and among older adults in particular, is the outcome of these services. Specifically, very little is known about how older adults perceive the services they receive and about the level of treatment dropout among this population. Information regarding these outcomes is important, as outcomes tend to be associated with level of functioning following treatment and can be important indicators of the quality of services received (Druss, Rosenheck, & Stolar, 1999).

The behavioural model of health services use (Andersen, 1995, 2008) offers a comprehensive model that can be applied to mental health service utilization. According to this model, contextual characteristics (e.g., health care system), health behaviours (e.g., personal health practices), and individual characteristics (e.g., predisposing characteristics) are all thought to influence the outcomes of service use. These outcomes, in turn, have an effect on the characteristics of the population and their health behaviours. Despite the important influences that the mental health care system and help-seeking behaviours have on mental health treatment outcomes, Andersen's model also suggests that individual characteristics are important factors and should be examined in outcome research (Corrigan, 1990). Three types of individual characteristics are identified in this

model: predisposing characteristics, enabling resources, and need for care. The focus of the present study is to examine the prevalence of treatment satisfaction, perceived treatment effectiveness, and treatment dropout among older adults receiving mental health services, as well as the individual characteristics associated with these outcomes.

Treatment Satisfaction

Treatment satisfaction has long been viewed as an important measure in mental health care research (Lebow, 1983; Ruggeri, 1994). Satisfaction with services has been linked to a number of other mental health care outcomes such as increased likelihood of attending follow-up, promptness of follow-up, and reduced likelihood of readmission to psychiatric inpatient services (Druss et al., 1999). Studies have generally found age to be positively associated with treatment satisfaction (Blenkiron & Hammill, 2003; Carlson, Shaul, Eisen, & Cleary, 2002; Rosenheck, Wilson, & Meterko, 1997; Slater, Linn, & Harris, 1981). Despite evidence that older adults tend to be more satisfied than younger adults with the mental health services they receive, very few studies have examined the factors associated with satisfaction within this population. One recent study examined treatment satisfaction among older adults receiving one of two models of mental health intervention (Chen et al., 2006). This study found that the majority of older adults were satisfied with the treatment they received, and that lower socio-economic status and higher stigma toward mental illness were related to lower levels of treatment satisfaction in bivariate but not multivariate analyses. Age, ethnicity, marital status, living arrangement, and mental disorder diagnosis were not associated with satisfaction in this study. Another study examining associations between income level and outcomes of primary care treatment of depression among older adults found no association between

income and treatment satisfaction. Interestingly, older adults of all income brackets were more satisfied in the collaborative care condition than the usual care condition (Areán, Gum, Tang, & Unutzer, 2007).

The results of studies not specific to older adults examining individual characteristics associated with treatment satisfaction have been somewhat inconsistent. With the exception of age, predisposing characteristics such as gender, ethnicity, and education, have not generally been found to be associated with treatment satisfaction (Lebow, 1983; Sullivan & Spritzer, 1997). However, some studies have found treatment satisfaction to be positively associated with being male (Kuosmanen, Hatonen, Jyrkinen, Katajisto, & Valimaki, 2006) and negatively associated with level of education (Carlson et al., 2002).

With respect to enabling resources, income has not been found to be associated with treatment satisfaction (Essex, Fox, & Groom, 1981; Kelstrup, Lund, Lauritsen, & Bech, 1993). Social support variables have seldom been included in studies of satisfaction with mental health services. One study found higher levels of social support were associated with greater satisfaction with mental health services received from a medical doctor, although this effect was no longer significant after adjusting for other variables (Redmond, Galea, & Delva, 2009). The relationship between social support and satisfaction with services was not significant for any other type of service provider. However, given that perceived social support is positively associated with patient satisfaction with medical health services (Barry et al., 2007; Da Costa et al., 1999), further research examining this relationship for mental health services is needed.

Research examining need variables and treatment satisfaction has found greater

treatment satisfaction to be associated with higher levels of self-reported mental health (Carlson et al., 2002) and the absence of a mental disorder (Urbanoski, Rush, Wild, Bassani, & Castel, 2007). Lower levels of satisfaction have also been found among those with comorbid mental disorder and substance dependence (Urbanoski et al., 2007).

In summary, existing research examining predictors of treatment satisfaction suggests that mental health need variables are likely to be negatively related to satisfaction. Inconsistent findings suggest weaker associations between satisfaction and predisposing and enabling factors.

Perceived Treatment Effectiveness

Related to treatment satisfaction, the perceptions that individuals have of the effectiveness of mental health services is another important outcome of treatment. One study of perceived effectiveness of mental health services in the Canadian general public found that 62% of patients reported that the services they received were effective (J. Wang & Patten, 2007). The factors that were positively associated with perceived effectiveness in this analysis were the use of psychotropic medications and receiving specialist mental health services only. None of the need variables included in the analyses was significant predictors. Another recent study found that lower levels of reported treatment helpfulness were associated with: (a) lower income for those seeing a psychiatrist, and (b) White race/ethnicity for those seeing a psychologist or social worker (Redmond et al., 2009). Perceived effectiveness was also included in a study examining the use of mental health services focusing on those with comorbid mental disorders and substance dependence (Urbanoski et al., 2007). This study found that those with no mental disorder were more likely to report the treatment they received as helpful

compared to those with a mental disorder or substance dependence. Those with comorbidity were least likely to have perceived the services as helpful.

With regards to older adults, one study of the general population found that beliefs regarding treatment effectiveness did not vary significantly across the adult lifespan and that over 70% of older adults held positive beliefs about the effectiveness of mental health services (Mackenzie, Scott, Mather, & Sareen, 2008). Unfortunately, research of perceived treatment effectiveness regarding older adults' own experiences of mental health services is lacking.

In general, the results of this limited research regarding perceptions of the effectiveness of treatment have been equivocal. However, given the relationship between treatment satisfaction and perceived effectiveness, it is likely that mental health need variables are negatively associated with older adults' perceptions of the effectiveness of treatment.

Treatment dropout

A third important outcome of mental health service use is whether individuals complete versus drop out of treatment. Treatment dropout rates have been estimated at 22.3% in Canada (J. Wang, 2007) and 19-22% in the United States (Edlund et al., 2002; Olfson et al., 2009) and are associated with other variables such as poorer social functioning and more severe mental disorders (Killaspy, Banerjee, King, & Lloyd, 2000). The issue of dropout is a significant one for a number of reasons. First, those who drop out of treatment prematurely are not receiving the potential symptom relief that they would otherwise receive if they continued with treatment. Dropout may also indicate that the services being offered are not effective. Researchers evaluating the effectiveness of

psychological interventions assert that dropout rates must be taken into account in order to get an accurate picture of treatment efficacy (Bados, Balaguer, & Saldaña, 2007).

Finally, dropout is problematic from an economic and systemic standpoint because it is often accompanied by missed appointments, and these no-shows result in a waste of scarce mental health resources and increased waitlist times (Barrett, Chua, Crits-Christoph, Gibbons, & Thompson, 2008).

Lower levels of dropout are generally associated with older age (Edlund et al., 2002; Rossi et al., 2002; J. Wang, 2007). Despite these findings, the levels of treatment dropout appear to remain quite high among older adults. A meta-analysis of 14 studies of psychological outreach programs for older adults with depression found that, although the interventions were effective (mean effect size: $d = 0.77$), the mean dropout rate was 23% (Cuijpers, 1998). With regard to correlates of dropout, one study found that older adults with higher levels of perceived stigma regarding the use of mental health services were more likely to drop out of treatment (Sirey et al., 2001). However, as with treatment satisfaction and perceived treatment effectiveness, little is known about the characteristics of older adults who drop out of treatment.

Regarding predisposing variables, studies not specific to older adults have found higher levels of treatment dropout to be associated with being female (Issakidis & Andrews, 2004), non-White (Sue, McKinney, & Allen, 1976; J. Wang, 2007), and having a lower level of education (Sue et al., 1976). A recent study found mixed results regarding predictors of dropout depending on the type of service received (Olfson et al., 2009). For those who saw a psychiatrist, there were greater odds of dropping out among those who were married. For those seeing a mental health professional other than a

psychiatrist, dropout was negatively associated with education. Similarly, another study found that dropout was associated with younger age for those seeing a psychiatrist or a general practitioner, but not for those seeing a psychologist (Pinto-Meza et al., 2010). Others have found no relationship at all between predisposing variables and treatment dropout (Beckham, 1992; Berghofer, Schmidl, Rudas, Steiner, & Schmitz, 2002; Morlino, Martucci, Musella, Bolzan, & de Girolamo, 1995).

Studies including enabling resources have found higher rates of treatment dropout associated with lack of insurance (Edlund et al., 2002; Swett & Noones, 1989) but not with income (Edlund et al., 2002; Tehrani, Krussel, Borg, & Munk-Jorgensen, 1996). Being unemployed has been associated with dropout in some studies (Berghofer et al., 2002; Tehrani et al., 1996) but not in others (Issakidis & Andrews, 2004; J. Wang, 2007). In one study that included social support variables, treatment dropout was associated with lower perceived quality of relationships with family or significant others (Berghofer et al., 2002). However, in this study the number of social contacts was not associated with treatment dropout.

With regards to need variables, greater physical health disability has been associated with treatment dropout (Issakidis & Andrews, 2004). In terms of mental health diagnoses, a study of the Canadian general population found that those with substance dependence and those with mood disorders were more likely to drop out of treatment than those with no mental disorder diagnosis (J. Wang, 2007). This study did not find a difference in dropout rates between those with anxiety disorders and those with no mental disorder. Among patients at an outpatient anxiety disorders clinic, dropping out of treatment was associated with milder anxiety symptoms and more severe depressive

symptoms (Issakidis & Andrews, 2004).

In general, these findings indicate that need variables, such as physical disability and mental disorders, are likely to be the strongest predictors of dropout among older adults. The findings regarding predisposing and enabling variables have been equivocal and suggest that these variables are less likely to be related to dropout.

Examining the prevalence of treatment outcomes and associations between them and individual characteristics is important for policy and practice initiatives aimed at increasing mental health care use among older adults. Awareness of the characteristics of those older adults who are more or less likely to have favourable outcomes from mental health services is an important step in developing more effective service systems for these individuals. This aspect of older adults' mental health care has been largely overlooked and the present study begins to address this gap in the research literature.

In response to the lack of research on treatment outcomes among older adults, the first aim of this study was to provide estimates of the proportion of older adults in the general public who: (1) are satisfied with the treatment they receive; (2) perceive this treatment as having been helpful; and (3) drop out of treatment. The second aim of this study was to explore the predisposing, enabling, and need factors associated with treatment satisfaction, perceived treatment effectiveness, and dropout among older adults using mental health services. As discussed above, there have been few studies examining these outcomes among older adults and a lack of consistent findings regarding the role of predisposing and enabling factors in these outcomes in the general population. However, the relationship between need factors and these outcomes has been relatively clear. Therefore, we hypothesized that need factors would be the strongest predictors of

treatment satisfaction, perceived treatment effectiveness, and treatment dropout among older adults. Specifically, that there would be a greater likelihood of treatment satisfaction and perceived treatment effectiveness, and less likelihood of treatment dropout among those with lower levels of psychological distress, lower levels of chronic health conditions, and no mental disorder. Given the inconsistency of previous findings, we hypothesized that predisposing and enabling resource factors will have weak or negligible effects on treatment outcomes.

Methods

Sample

The data for this study came from the Canadian Community Health Survey-Mental Health and Well-Being (CCHS-1.2). The CCHS-1.2 is a cross-sectional, nationally representative survey of Canadians aged 15 and older. Statistics Canada conducted the survey from May to December 2002. The final sample for the CCHS-1.2 included 36,984 individuals living in private dwellings in the ten Canadian provinces. The survey did not include residents of the Canadian territories, Indian Reserves, Crown Lands, or institutions, full-time members of the Canadian Armed Forces, or residents of certain remote regions. Respondents were selected using a multistage stratified cluster design. The national response rate of the CCHS-1.2 was 77%. For further information regarding this survey, see Gravel and Beland (2005).

The present study focused on those CCHS-1.2 participants who were 55-years old and older at the time of the survey ($N = 12,792$). We chose this age limit to be consistent with previous research examining mental health among older adults using the CCHS-1.2 (Cornia et al., 2007; McCabe et al., 2006) and to increase the sample size. This departure

from the traditional cut-off of 65 years is reasonable given that individuals are increasingly retiring before that age or much later in life.

Measures

Mental Health Service Use. The CCHS-1.2 collected information on lifetime and past-year use of mental health services. Respondents reported if they had seen or talked on the telephone to various professionals about their “emotions, mental health or use of alcohol or drugs”. For the purposes of this study, we focused on ‘formal’ mental health services including: “family doctor or general practitioner”, “other medical doctor”, “psychiatrist”, “psychologist”, “nurse”, and “social worker, counsellor or psychotherapist”. We coded respondents who had seen at least one professional in the past 12 months as past-year service users. For some analyses, we also categorized service use into general medical sector (family doctor, general practitioner, other medical doctor, or nurse) versus specialty mental health sector (psychiatrist, psychologist, social worker, counsellor or psychotherapist).

Outcome Variables. The outcome variables included in the study were treatment satisfaction, perceived treatment effectiveness, and dropout. The CCHS 1.2 inquired about these outcomes as part of a section regarding participants’ use of mental health services. For those who had contact with one or more professionals, follow-up questions explored their experiences. Treatment satisfaction was measured with the question: “In general, how satisfied are you with the treatments and services you received from the [health or mental health professional] during the past 12 months?” Responses were made on a 5-point scale ranging from 1 (very satisfied) to 5 (very dissatisfied). We calculated an average satisfaction score for those respondents who had seen more than one type of

professional in the past year. Analyses of the data indicated that treatment satisfaction was highly skewed toward greater satisfaction. Therefore, we dichotomized this variable to distinguish those who were “very satisfied” or “satisfied” from those who were “neither satisfied or dissatisfied”, “dissatisfied”, or “very dissatisfied”. We labelled the two resulting categories as “satisfied” or “neutral/dissatisfied”.

The CCHS 1.2 also assessed perceived treatment effectiveness with the question: “In general, how much would you say the [health or mental health professional] helped you?” Responses to this question were made on a 4-point scale ranging from 1 (a lot) to 4 (not at all). We calculated an average effectiveness score for those respondents who had seen more than one type of professional in the past year. As with treatment satisfaction, ratings of treatment effectiveness were highly skewed. Therefore, we dichotomized this variable to distinguish those who felt the treatment helped them “a lot” or “some” from those who felt it helped “a little”, or “not at all”. We labelled responses to this variable as “effective” or “not effective”. Treatment satisfaction and perceived treatment effectiveness were highly correlated ($r = .60$), and do not represent completely independent constructs. However, we chose to analyze both of these variables in order to explore potential differences in these aspects of older adults’ perceptions of the mental health services they receive. Of note, we examined treatment satisfaction and perceived treatment effectiveness for all older adults who used services in the past year regardless of whether they completed, continued, or dropped out of treatment during that year.

With respect to treatment dropout, the survey asked respondents if they had stopped talking to the [health or mental health professional] about their emotions, mental health, or use of alcohol or drugs. Those who answered “yes” to this question indicated

why they stopped. Consistent with previous research using the CCHS-1.2 (J. Wang, 2007), we coded those respondents who had not stopped treatment and those who responded that they discontinued because they “felt better” or “completed recommended treatment” as not having dropped out. We coded those who endorsed any of the following reasons for discontinuing treatment as having dropped out: “thought it was not helping”, “thought the problem would get better without more professional help”, “couldn’t afford to pay”, “too embarrassed to see the professional”, “wanted to solve the problem without professional help”, “had problems with things like transportation, childcare or your schedule”, “the service or program was no longer available”, “not comfortable with the professional’s approach”, and “other”.

There were a small number of cases in which respondents had discontinued one type of treatment and continued or completed another treatment. The majority of this overlap was with individuals who had continued to see their family doctor for mental health problems, but had dropped out of a specialty service. Given that individuals are likely reluctant to leave their family physicians because they receive both physical and mental health care from them, and because of the current shortage of family physicians, we categorized these individuals as having dropped out.

Predisposing Factors. The predisposing variables included in our models were age, gender, marital status, and education. We examined age continuously and categorized marital status into married/common-law relationship versus not currently married (i.e., widowed, separated, divorced, or never married). We categorized education for descriptive purposes and included it as a continuous variable in the logistic regression analyses.

Enabling Factors. We included income and perceived social support as enabling factors in the analyses. Income was based on past-year household income. We categorized income into three broad categories for descriptive purposes (<20,000; 20,000-49,999; 50,000+) and included it as a continuous variable in the logistic regression analyses. The CCHS-1.2 measured perceived social support using the Medical Outcomes Study-Social Support Survey (Sherbourne & Stewart, 1991). This measure includes 19-items in which respondents rate how often a particular type of social support is available if needed (1 = “none of the time” to 5 = “all of the time”). The sum of all items provides a global continuous measure of perceived social support. This scale has adequate internal-consistency reliability and one-year stability (Sherbourne & Stewart, 1991).

Need Factors. The need factors included in the analyses were chronic physical conditions, psychological distress, and past-year mood or anxiety disorder. With respect to chronic physical conditions, respondents indicated whether a health professional had diagnosed them with any of a number of common chronic conditions. We used the Charlson Comorbidity Index (CCI; Charlson, Pompei, Ales, & Mackenzie, 1987) to account for the effects of medical morbidity of each condition. A total chronic physical health conditions score for each respondent represents the sum of the CCI scores (range 1-6) assigned to each condition. We measured psychological distress using the reliable and valid Kessler 10-item distress scale (Kessler et al., 2002). Respondents answered how often they had experienced each item during the past month on a 5-point scale ranging from “none of the time” to “all of the time”, and these responses were summed to provide an overall measure of distress. Finally, with respect to mood or anxiety disorders,

past-year major depressive disorder, mania, agoraphobia, panic disorder, and social phobia were determined using the CCHS-1.2 WMH-CIDI diagnostic algorithms. We coded those respondents meeting the criteria for at least one of these disorders in the past 12 months as having a past-year mood or anxiety disorder. We were unable to examine the influence of mood disorders versus anxiety disorders in predicting the outcome variables due to the small number of older adults with anxiety disorders and no comorbid mood disorder.

Analytic Strategy

Data for this study came from the CCHS-1.2 Master File maintained at the Statistics Canada Research Data Centre in Winnipeg, Manitoba, Canada. We applied the appropriate weights provided by Statistics Canada to ensure the sample was representative of the Canadian population. Bootstrap procedures determined the 95% confidence intervals incorporating the multistage sample design information provided by Statistics Canada, using SUDAAN version 10.0 software (RTI International, 2008). All reported percentages are weighted.

We calculated the prevalence of mental health services in general and for each type of service using cross tabulations. We calculated the percentages of older adults who were satisfied with treatment, perceived the treatment as effective, and dropped out of treatment and used chi-square analyses to compare these percentages for treatment in the general medical sector and the specialty mental health sector. Also, for each treatment outcome, chi-square tests and *t*-tests explored differences between the two groups (e.g., satisfied versus neutral/dissatisfied) for each independent variable. Forced-entry stepwise logistic regression examined the predisposing, enabling, and need factors predicting each

treatment outcome. Andersen's (1995, 2008) model guided the order in which variables entered the models. Specifically, age, gender, marital status, and education were entered as predisposing variables in step 1, income and perceived social support were entered as enabling variables in step 2, and chronic physical conditions, psychological distress, and mental disorder diagnosis as need variables were entered in step 3. As treatment satisfaction has also been found to be a strong correlate of treatment dropout (Tehrani et al., 1996), we included treatment satisfaction in the fourth step of the analysis of treatment dropout. We then reran this step with perceived effectiveness in the place of treatment satisfaction to examine the possible relationship between effectiveness and dropout. We assessed possible multicollinearity between the predictor variables in the models, and in each case this was not a concern (i.e., variance inflation factors less than 2).

Results

Of the 12,792 older adults included in the CCHS-1.2, 664 (5.3%) used mental health services in the past year. Specifically, 349 (2.5%) received services only in the general medical sector, 145 (1.3%) only in the specialty mental health sector, and 170 (1.5%) in both sectors. With regard to the type of professional seen, 492 (3.8%) saw their family doctor or general practitioner, 169 (1.3%) saw a psychiatrist, 117 (1.1%) saw a social worker, counsellor or psychotherapist, 86 (1.0%) saw a psychologist, 38 (0.2%) saw a nurse, and 32 (0.2%) saw a medical doctor other than their family doctor.

Satisfaction with Treatment

Of the older adults who had received treatment in the past year, 575 (88.5%) reported that they were satisfied with treatment and 87 (11.5%) reported that they were

neutral or dissatisfied. Of those who received treatment in the general medical sector, 307 (90.4%) reported satisfaction with treatment, and 42 (9.6%) reported being neutral/dissatisfied. Of those receiving specialty mental health services, 262 (85.8%) were satisfied and 49 (14.2%) were neutral/dissatisfied. The rate of satisfaction between the two sectors was not significantly different ($\chi^2 = 1.78, p = 0.18$). Table 1 presents the characteristics of older adults who were satisfied and neutral/dissatisfied with the services they received. The groups were very similar, with the only significant difference being lower levels of perceived social support among those who were neutral/dissatisfied. There was also a nearly significant trend toward greater psychological distress among those who were neutral or dissatisfied with services.

In the first step of the logistic regression analysis examining predictors of treatment satisfaction, none of the predisposing variables were significant predictors with Wald $F(4, 500)$ values < 0.58 and p values $> .45$. In step two, which introduced the enabling factors, lower income, Wald $F(6, 500) = 3.85, p = 0.05$, and higher levels of social support, Wald $F(6, 500) = 10.72, p = < 0.01$, were related to being satisfied with treatment. As presented in Table 2, in the final step that introduced the need factors, income and social support remained significant predictors of satisfaction. However, none of the predisposing factors or need factors predicted satisfaction.

Perceived Effectiveness of Treatment

Of the older adults who had received treatment in the past year, 540 (83.6%) reported that they felt the treatment was effective, whereas 119 (16.4%) reported that it was not. Of those who received treatment in the general medical sector, 289 (83.7%) felt the services were effective and 60 (16.3%) felt it was ineffective. Of those receiving

specialty mental health services, 257 (84.0%) rated the services as effective and 52 (16.0%) rated it as ineffective. The rates of perceived effectiveness for the two sectors were not significantly different ($\chi^2 = 0.005, p = 0.95$). Table 3 presents the characteristics of older adults who felt the treatment they received was either effective or ineffective. Again, there were very few differences between these groups. Those who reported the treatment they received as effective had higher levels of education and higher levels of social support than those who indicated that treatment was not effective.

In step one of the logistic regression analysis examining predictors of perceived effectiveness, none of the predisposing variables were related to effectiveness with Wald $F(4, 500)$ values < 2.26 and p values $> .13$. When income and social support were added in step two of the analysis only social support was significant, Wald $F(6, 500) = 7.69, p = < 0.01$. Only higher levels of social support predicted greater perceived treatment effectiveness in the final step of the analysis, which is shown in Table 4.

Dropout

Of the older adults who received treatment in the past year, 88 (15.5%) dropped out of at least one service. Of those who received treatment in the general medical sector, 468 (89.6%) stayed in the service or completed treatment and 47 (10.4%) dropped out. Of those receiving specialty mental health services, 263 (82.3%) stayed in the service or completed treatment and 51 (17.7%) dropped out. The rates of dropout between general medical and specialty mental health services were not significantly different ($\chi^2 = 2.97, p = 0.09$). Table 5 presents the characteristics of those who dropped out of treatment and those who either stayed in or completed treatment. Dropout was positively associated with being neutral or dissatisfied with treatment, and with perceiving treatment as having

been ineffective. Dropout was also associated with level of education. The majority of those who dropped out of treatment had a secondary degree or some post-secondary and the majority of those who did not drop out had a post-secondary degree or diploma.

In the first step of the logistic regression analysis examining predictors of dropout, none of the predisposing variables were significant predictors with Wald $F(4, 500)$ values < 1.49 and p values $> .22$. When income and social support were added in step two of the analysis, higher income was significantly related to dropping out, Wald $F(6, 500) = 3.79, p = 0.05$. In the next step, in which the need variables were included in the analyses, none of the variables in this analysis were significant predictors of dropout with Wald $F(9, 500)$ values < 2.71 and p values > 0.10 . Table 6 presents the final step of this analysis, when treatment satisfaction was added to the model. Treatment satisfaction was the only variable that was significantly related to dropout. As expected, those who dropped out of services were more likely to be neutral or dissatisfied with services than those who remained in treatment or completed treatment. Compared to those who were satisfied with treatment, the odds of dropout were 3.5 times greater for those who were neutral or dissatisfied. Finally, we reran this final model with perceived treatment effectiveness rather than treatment satisfaction. We included these variables in separate analyses because they were highly correlated ($r = .60$). In this analysis those who dropped out of services were more likely to report that treatment was ineffective than those who did not drop out (AOR: 3.91, 95% CI: 1.47-10.41, $p = <0.01$).

Discussion

Results from this study indicate that older adults are generally satisfied with the mental health services they receive. In fact, over 88% reported that they were satisfied

with the treatment they received in the past year. This is consistent with previous findings of high rates of satisfaction with various aspects of mental health treatment among older adults (Chen et al., 2006). Given the close relationship between treatment satisfaction and treatment effectiveness, it is not surprising that a similarly high percentage (84%) of older adults reported that the treatment they received in the past year was effective. This is very encouraging and is consistent with a growing body of evidence that mental health treatment for older adults is indeed effective (Pinquart, Duberstein, & Lyness, 2007; Stanley et al., 2009). These results are also interesting given previous findings by Mackenzie and colleagues (2008) that over 70% of older adults held positive beliefs about the effectiveness of mental health treatment. The present results suggest that these beliefs are likely confirmed for the majority of older adults who go on to receive services. These results are also encouraging given that they represent treatment satisfaction and perceived treatment effectiveness for all older adults, including those who dropped out of treatment during that year. On the other hand, these data still indicate that there is room for improvement, with 12-16% of older adults reporting being neutral/dissatisfied or experiencing treatment as ineffective.

Based on previous research findings, we expected negative relationships between need variables and both treatment satisfaction and perceived treatment effectiveness. However, none of these variables (i.e., chronic health conditions, mental disorder, or psychological distress), were related to either outcome. This finding is inconsistent with previous findings for adults (Carlson et al., 2002; Urbanoski et al., 2007), but is consistent with the limited research involving older adults (Chen et al., 2006). In this study of older adult primary care patients, mental health diagnosis at baseline was not

related to patient satisfaction with treatment. Taken together with the present study, these results suggest that need factors may have less effect on treatment satisfaction and perceived effectiveness with increasing age. Further research is needed to directly examine if this is the case.

Interestingly, greater social support was a significant predictor of higher levels of both treatment satisfaction and perceived treatment effectiveness in this study. This was the only variable that predicted both of these outcomes, and it had a similar effect in both analyses. Unfortunately, there is little previous research with which to compare these results. One study not specific to older adults found that social support was only related to treatment satisfaction for mental health services received from a medical doctor, and this relationship disappeared in multivariate analysis (Redmond et al., 2009). In addition, some studies have found relationships between satisfaction with mental health services and quality of life measures, which included satisfaction with social relationships (Blenkiron & Hammill, 2003; Ruggeri, Gater, Bisoffi, Barbui, & Tansella, 2002). Similarly, higher levels of social support have been related to greater treatment satisfaction for medical health services (Barry et al., 2007; Da Costa et al., 1999).

There are a number of potential reasons for why social support is related to treatment satisfaction. It is possible that older adults with lower levels of social support have different expectations of mental health treatment than those with more support available to them. In fact, it has been suggested that mental health services may act as a partial substitute for social support (ten Have, Vollenbergh, Bijl, & Ormel, 2002). This may lead to dissatisfaction with services if treatment does not meet the older individuals' expectations of social support. It is also likely that individuals who use treatment, either

consciously or not, as a substitute for social support will be disappointed when the treatment ends, even if the treatment is effective. The stronger findings of relationships between social support and treatment outcomes in the present study compared to that of Redmond and colleagues (2009) may indicate that this is a more important factor in older age. One possible reason for this is that older adults tend to have more contact with the health care system than younger adults do. However, further research examining age differences is necessary to explore this hypothesis.

The positive relationship found between social support and perceptions of treatment effectiveness is also very interesting. In their summary of research examining factors affecting psychotherapy outcomes, Lambert and Barley (2002) estimate that 40% of improvement in psychotherapy patients is due to “extratherapeutic factors”, such as level of social support. It is possible that older adults who are better able to maintain good social support networks also have the resources to benefit the most from mental health treatment. In addition, many psychological treatments for anxiety and mood disorders include components designed to increase the social support these individuals receive. This may be easier to do with people who have more established and satisfying social support networks.

To our knowledge, the present study is the first to examine treatment dropout specifically among older adults using a nationally representative sample. The findings indicate that approximately 16% of older adults using mental health services in the past year dropped out of treatment. This dropout rate is lower than rates found for the general population, which are estimated at approximately 19-22% (Edlund et al., 2002; Olfson et al., 2009; J. Wang, 2007), and is consistent with previous findings that older age is

associated with lower dropout rates (Rossi et al., 2002; J. Wang, 2007). It is possible that older adults, at least for this present cohort, are more likely to trust their service providers and to adhere to their treatment recommendations. The high rate of perceived treatment effectiveness among these older adults also indicates that they likely remain in treatment because they find it helpful. While the present study did not find significant differences in the rate of dropout between the general medical and specialty mental health sectors, the CCHS-1.2 did not inquire as to the type of service received (i.e., psychological versus pharmacological treatments). Given the greater time commitment generally associated with psychological treatment, it is possible that those receiving psychotherapy may have been more likely to dropout. On the other hand, it is possible that side effects associated with drug treatment, particularly among older adults who are more likely to experience drug interactions due to polypharmacy, may be more likely to result in treatment dropout. Additional research is required to address these possibilities.

Surprisingly, none of the predisposing, enabling, or need factors included in the present analysis were related to treatment dropout in the final models. However, the odds of dropping out of services for those who were neutral/dissatisfied with treatment, or who found it ineffective, were 3.5 to 4 times greater than the odds for those who were satisfied or who perceived treatment to be effective. This is consistent with a longitudinal study which found that dissatisfaction with services was the main reason for dropout (Ruggeri et al., 2007). In many ways, these relationships are very encouraging because variables that might affect treatment outcome in an inequitable manner (e.g., education, income) have little impact among older adults. However, these findings also indicate that understanding the factors that lead to greater treatment satisfaction and perceived

effectiveness among older adults is essential to reducing dropout.

There were no significant differences in rates of treatment satisfaction, perceived effectiveness, or dropout between the general medical and specialty mental health sectors in this study. While this may indicate that individuals are receiving appropriate treatment in both sectors, previous research suggests this may not be the case (Young, Klap, Sherbourne, & Wells, 2001). Young and colleagues found that the likelihood of receiving appropriate care for depression or anxiety was much higher within the specialty mental health sector than in the general medical sector. It may be that older adults' perceptions of effectiveness and satisfaction are influenced by their demonstrated preference for having their mental health needs met by their family physician (Waxman, Carrier, & Klein, 1984). This possibility points to the need for examining objective indicators of effectiveness in addition to perceptions of it. However, studies also show that older adults prefer psychotherapy to medication treatment for depression (Gum et al., 2006; Landreville, Landry, Baillargeon, Guérette, & Matteau, 2001), and that they would prefer psychotherapy to medication if it were available in primary care (Areán, Hegel, & Reynolds, 2001). Efforts to integrate psychotherapy as a treatment option in primary care are clearly needed to ensure that older adults receive access to preferred and effective mental health treatment.

The findings from this study should be interpreted in the light of a number of strengths and limitations. A significant strength is that the CCHS-1.2 includes a very large sample of older adults compared to previous surveys in the United States (Kessler et al., 2004) and other countries (Alonso et al., 2004; Andrews, Henderson et al., 2001), which allowed for detailed analysis of treatment outcomes despite relatively low rates of

dissatisfaction, perceived ineffectiveness, and dropout. However, the data in the CCHS-1.2 are self-reported and susceptible to memory bias and recall errors. In fact, studies suggest that older adults may substantially underestimate their use of health services (Wallihan, Stump, & Callahan, 1999). Additionally, lay interviewers diagnosed the mental disorders in the survey and it is likely that diagnoses made by trained clinicians would be more valid. In addition, because the CCHS-1.2 only surveyed community dwelling individuals, the current findings are not generalizable to institutionalized older adults such as those living in personal care homes. Finally, the type of information collected in the CCHS 1.2 regarding treatment outcomes limits this study. The survey did not inquire as to the type of treatment that individuals received from the various providers. Therefore, it is not possible to comment on the types of treatment that older adults found the most effective and satisfying, or which treatments were more likely to result in drop out. There were also no objective measures of treatment effectiveness included in the data. Therefore, this study is unable to say if objective measures would or would not line up with people's subjective impressions.

In summary, the present study found that older adults are generally satisfied with mental health services, perceive them to be effective, and are relatively unlikely to drop out of treatment. However, the data still indicate that there is room for improvement, with 12-16% of older adults reporting being neutral/dissatisfied or experiencing treatment as ineffective and 16% dropping out of treatment. In general, the results of the multivariate analyses indicate that individual characteristics played only a small role in the outcomes of mental health service use for older adults. According to Andersen's model (2008) contextual characteristics and health behaviours also influence these outcomes. He argues

that contextual characteristics influence outcomes both directly and through their influence on individual characteristics and health behaviours. Given this, we may expect to see a change in the outcomes of mental health services among older adults in the coming decades as they continue to represent an increasingly large percentage of the population (Bélanger, Laurent, & Caron-Malenfant, 2005) and as future cohorts of older adults experience a higher prevalence of mental health problems (Jeste et al., 1999). Further research into the factors that lead to better treatment satisfaction, enhanced perceived treatment effectiveness, and reduced dropouts among older adults is necessary to inform the inevitable changes to mental healthcare systems that will accompany our aging population.

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Table 1

Characteristics of older adults who were satisfied and neutral/dissatisfied with the mental health services received in the past year

	Satisfied	Neutral/Dissatisfied	χ^2 or <i>t</i>	<i>p</i>
	N(%) ^a or mean \pm SD	N(%) ^a or mean \pm SD		
Age, mean \pm SD	63.5 \pm 10.1	64.9 \pm 14.4	-0.90	0.37
Gender, N(%)			0.00	1.00
Male	190 (35.3)	29 (35.3)		
Female	385 (64.7)	58 (64.7)		
Marital status, N(%)			0.02	0.88
Married/common-law	253 (58.5)	38 (59.6)		
Not currently married	322 (42.5)	49 (40.4)		
Education, N(%)			0.56	0.57
Less than secondary graduation	221 (33.8)	32 (35.1)		
Secondary graduation/Some post- secondary	115 (24.1)	26 (30.6)		
Post-secondary degree/diploma	236 (42.1)	28 (34.3)		
Income, N(%)			0.12	0.89
< 20,000	187 (22.5)	27 (20.8)		
20,000-49,999	207 (38.9)	31 (36.0)		
50,000+	135 (38.7)	21 (43.2)		

Social support, mean \pm SD	59.1 \pm 19.9	50.4 \pm 22.6	3.20	<0.01
Chronic physical conditions, mean \pm SD	2.3 \pm 7.2	2.3 \pm 3.1	-0.04	0.97
Psychological distress (past month), mean \pm SD	10.7 \pm 13.2	13.8 \pm 14.8	-1.82	0.07
Past-year mood or anxiety disorder, N(%)			1.08	0.30
No	342 (64.2)	51 (54.7)		
Yes	187 (35.8)	32 (45.3)		

Note. SD = standard deviation

^a Reported Ns are for the sample, whereas percentages are weighted to be representative of the Canadian population. N's for the two groups may not be equal to final sample due to missing data.

Table 2

Logistic regression predicting greater satisfaction with past year mental health treatment by older adults

Variable	AOR ^a (95% CI)	<i>t</i> ^b	<i>p</i>
Age	0.98 (0.92-1.03)	-0.82	0.41
Gender			
Male	1.00		
Female	0.71 (0.28-1.81)	-0.71	0.48
Marital status			
Married/common-law	1.00		
Not currently married	0.88 (0.36-2.13)	-0.28	0.78
Education	1.11 (0.95-1.28)	1.33	0.19
Income	0.79 (0.63-0.99)	-2.07	0.04
Social support	1.03 (1.01-1.05)	2.85	<0.01
Chronic physical conditions	0.93 (0.74-1.15)	-0.69	0.49
Psychological distress (past-month)	1.09 (0.93-1.28)	-0.77	0.44
Past-year mood or anxiety disorder			
No	1.00		
Yes	1.17 (0.42-3.28)	0.31	0.76

Note. AOR = adjusted odds ratio, CI = confidence interval.

^a Odds ratios are adjusted for all other variables in the model.

^bWald *t* tests with *df* = 500.

Table 3

Characteristics of older adults who reported mental health treatment received in past year were effective and ineffective

	Effective	Ineffective	χ^2 or <i>t</i>	<i>p</i>
	N(%) ^a or mean \pm SD	N(%) ^a or mean \pm SD		
Age, mean \pm SD	63.3 \pm 10.0	65.5 \pm 12.9	-1.69	0.09
Gender, N(%)			0.00	0.95
Male	175 (35.2)	43 (35.6)		
Female	365 (64.8)	76 (64.4)		
Marital status, N(%)			0.46	0.50
Married/common-law	239 (59.2)	49 (54.3)		
Not currently married	301 (40.8)	70 (45.7)		
Education, N(%)			3.71	0.03
Less than secondary graduation	204 (32.5)	48 (40.1)		
Secondary graduation/Some post-secondary	105 (23.3)	36 (33.2)		
Post-secondary degree/diploma	227 (44.2)	35 (26.7)		
Income, N(%)			0.30	0.74
< 20,000	177 (21.6)	37 (26.1)		
20,000-49,999	195 (38.6)	41 (36.9)		
50,000+	129 (39.9)	27 (36.9)		

Social support, mean \pm SD	59.5 \pm 19.7	51.5 \pm 20.0	3.73	<0.001
Chronic physical conditions, mean \pm SD	2.3 \pm 7.4	2.4 \pm 2.7	-0.26	0.80
Psychological distress (past month), mean \pm SD	10.9 \pm 13.5	11.9 \pm 14.1	-0.70	0.48
Past-year mood or anxiety disorder, N(%)			0.04	0.85
No	321 (62.9)	71 (64.3)		
Yes	179 (37.2)	38 (35.7)		

Note. SD = standard deviation

^a Reported Ns are for the sample, whereas percentages are weighted to be representative of the Canadian population. N's for the two groups may not be equal to final sample due to missing data.

Table 4

Logistic regression predicting greater perceived effectiveness of past-year mental health treatment by older adults

Variable	AOR ^a (95% CI)	<i>t</i> ^b	<i>p</i>
Age	0.98 (0.93-1.02)	-1.03	0.30
Gender			
Male	1.00		
Female	1.08 (0.51-2.29)	0.20	0.84
Marital status			
Married/common-law	1.00		
Not currently married	0.70 (0.35-1.41)	-0.99	0.32
Education	1.09 (0.96-1.24)	1.35	0.18
Income	0.90 (0.73-1.10)	-1.04	0.30
Social support	1.02 (1.00-1.04)	2.32	0.02
Chronic physical conditions	0.92 (0.77-1.09)	-1.00	0.32
Psychological distress (past-month)	0.99 (0.93-1.04)	-0.44	0.66
Past-year mood or anxiety disorder			
No	1.00		
Yes	1.50 (0.65-3.45)	0.95	0.34

Note. AOR = adjusted odds ratio, CI = confidence interval.

^a Odds ratios are adjusted for all other variables in the model.

^bWald *t* tests with *df* = 500.

Table 5

Characteristics of older adults who dropped out of mental health services in the past year versus those who remained in treatment or completed treatment

	Dropped out	Stayed or completed	χ^2 or <i>t</i>	<i>p</i>
	N(%) ^a or mean \pm SD	N(%) ^a or mean \pm SD		
Age, mean \pm SD	62.8 \pm 11.9	63.8 \pm 10.5	-1.37	0.17
Gender, N(%)			0.19	0.66
Male	29 (38.4)	190 (34.7)		
Female	59 (61.6)	384 (65.3)		
Marital status, N(%)			0.59	0.44
Married/common-law	42 (64.3)	249 (57.6)		
Not currently married	46 (35.7)	325 (42.5)		
Education, N(%)			3.28	0.04
Less than secondary graduation	31 (28.7)	222 (34.9)		
Secondary graduation/Some post-secondary	30 (43.9)	111 (21.2)		
Post-secondary degree/diploma	27 (27.4)	237 (43.8)		
Income, N(%)			1.42	0.24
< 20,000	22 (14.5)	192 (23.7)		
20,000-49,999	31 (41.0)	207 (38.1)		

50,000+	25 (44.5)	131 (38.2)		
Social support, mean \pm SD	55.4 \pm 19.9	58.7 \pm 19.9	-1.37	0.17
Chronic physical conditions, mean \pm SD	2.3 \pm 3.1	2.3 \pm 7.4	0.07	0.95
Psychological distress (past month), mean \pm SD	12.9 \pm 16.8	10.7 \pm 12.2	1.21	0.23
Past-year mood or anxiety disorder, N(%)			0.89	0.34
No	49 (56.3)	344 (64.3)		
Yes	33 (43.7)	186 (35.7)		
Treatment satisfaction, N(%)			10.74	0.001
Satisfied	55 (71.1)	520 (91.6)		
Neutral/dissatisfied	33 (28.9)	54 (8.4)		
Perceived treatment effectiveness, N(%)			17.18	<0.001
Effective	45 (56.3)	495 (88.6)		
Ineffective	43 (43.7)	76 (11.4)		

Note. SD = standard deviation

^a Reported Ns are for the sample, whereas percentages are weighted to be representative of the Canadian population. N's for the two groups may not be equal to final sample due to missing data.

Table 6

Logistic regression predicting dropout of past year mental health services by older adults

Variable	AOR ^a (95% CI)	<i>t</i> ^b	<i>p</i>
Age	0.97 (0.92-1.03)	-0.91	0.37
Gender			
Male	1.00		
Female	0.77 (0.38-1.57)	-0.72	0.47
Marital status			
Married/common-law	1.00		
Not currently married	1.14 (0.43-2.98)	0.26	0.79
Education	0.97 (0.84-1.13)	-0.37	0.71
Income	1.13 (0.93-1.39)	1.22	0.22
Social support	1.00 (0.97-1.02)	-0.24	0.81
Chronic physical conditions	1.08 (0.88-1.33)	0.77	0.44
Psychological distress (past-month)	1.03 (0.97-1.09)	0.87	0.38
Past-year mood or anxiety disorder			
No	1.00		
Yes	0.75 (0.38-1.50)	-0.81	0.42
Treatment Satisfaction			
Satisfied	1.00		
Neutral/dissatisfied	3.51 (1.19-10.35)	2.28	0.02

Note. AOR = adjusted odds ratio, CI = confidence interval.

^a Odds ratios are adjusted for all other variables in the model.

^bWald *t* tests with *df* = 500.

CHAPTER FIVE: GENERAL DISCUSSION

There is mounting evidence that there will be an increased need for professional services for older adults with mental health problems in the coming decades (Borson, Bartels, Colenda, Gottlieb, & Meyers, 2001; Jeste et al., 1999). As researchers and clinicians strive to develop strategies to address this potential crisis, significant attention has turned to understanding the factors associated with mental health service use by older adults. However, despite the fact that it is important that older adults with anxiety are represented in this research literature, they are relatively absent. In order to address this need, the current research project set out to examine both the use of mental health services by older adults with anxiety and some of the important outcomes of this service use.

The Behavioural Model of Health Services Use

Andersen's (2008) behavioural model of health services use formed the theoretical basis for this investigation. According to this model there are four main components to health service use: (1) contextual characteristics (e.g., health care system factors, community characteristics), (2) individual characteristics (e.g., socioeconomic characteristics), (3) health behaviours (e.g., use of health services), and (4) outcomes (e.g., satisfaction with services). The focus of the current research is on the individual characteristics associated with mental health service use and treatment outcomes. These individual characteristics are separated into three categories: predisposing characteristics, enabling resources, and need for care.

While Andersen's (2008) model is helpful in conceptualizing the use of services, this model does have a number of limitations. One critique of this model is that it relies

too heavily on help-seeking being based on “rational choice” and does not adequately explain the process of help-seeking (Pescosolido, 1992). The network-episode model of health service use, which focuses on service use as a social process, was developed in response to this criticism (Pescosolido, 1992; Pescosolido & Boyer, 1999). Also, the Goldberg-Huxley model focuses on the structure of health care systems and the path that individuals take through the system toward psychiatric care (Goldberg & Huxley, 1980).

A second critique of Andersen’s (2008) model is that it tends to neglect psychological aspects of help-seeking behaviour. The health belief model (Rosenstock, 1966), which has been applied to the use of mental health services (Henshaw & Freedman-Doan, 2009), provides a more psychological approach with a focus on the influence of beliefs and perceptions on people’s health behaviours. Similarly the theory of planned behaviour (Ajzen, 1985) focuses on the role of attitudes and intentions on subsequent health behaviours.

Despite these limitations, I chose to use Andersen’s (2008) model of health service use for a number of reasons. First, this model is comprehensive and includes the role of individual characteristics in both the use of services and the outcomes of these services, my two main variables of interest. Second, research indicates that the model has been effective in predicting health service use by older adults (Calsyn & Winter, 2000). Third, this model is the dominant model used in mental health service utilization research and has been used to examine individual characteristics associated with service use by a wide variety of populations (e.g., Abe-Kim, Takeuchi, & Hwang, 2002; Bergeron, Poirier, Fournier, Roberge, & Barrette, 2005; Padgett, Patrick, Burns, & Schlesinger, 1994; Parslow & Jorm, 2000). The prevalence of studies using this model facilitates the

comparison of my findings to other research. Finally, the nature of the data available in population surveys, such as the one used in the current project, lends itself to measuring individual-level characteristics. This data typically does not include variables allowing researchers to tap into either the process of help-seeking or the psychological variables that affect it. While it is likely that the other models of service use discussed above will be helpful for future analysis of mental health service use by older adults with anxiety, Andersen's model is the best suited to address the research questions asked in this project.

Rates of Mental Health Service Use by Older Adults with Anxiety

Given the relative lack of research examining service use among anxious older adults, the first goal of this project was to determine the rates of mental health service use by older adults with anxiety disorders and by those with clinically significant anxiety symptoms. This study found that roughly 34% of older adults with a past-year anxiety disorder (panic disorder, social phobia, or agoraphobia) and 22% of older adults with clinically significant anxiety symptoms had used mental health services in the past year. These rates are 7-8% lower than rates of service use among those with anxiety disorders in the general population (Issakidis & Andrews, 2002; P. S. Wang et al., 2005). This study also found that only one fifth of older adults with an anxiety disorder and no comorbid mood disorder had used services. In contrast, approximately twice as many individuals with a mood disorder and over three times as many with comorbid anxiety and mood disorders sought professional help. Taken together, these findings support my hypothesis that anxious older adults are a particularly underserved sector of the population when it comes to the use of mental health services. This finding is particularly

troubling given that anxiety disorders can be effectively treated in older adults (Hendriks, Oude Voshaar, Keijsers, Hoogduin, & van Balkom, 2008; Lauderdale & Sheikh, 2003; Stanley & Beck, 2000).

This study also examined the use of mental health services in the general medical and specialty mental health sectors. Previous research has found that older adults prefer to have their mental health needs met by their family physician (Waxman, Carrier, & Klein, 1984), and has found low rates of specialty service use among older adults with depression (Cooper-Patrick, Crum, & Ford, 1994; Unutzer et al., 2002). Based on this, it was somewhat surprising to find that for the small percentage of anxious older adults who received services, they were likely to receive specialty services. Approximately 60% were seen in the specialty sector, either solely or in conjunction with services in the general medical sector. The cause of this is not clear. It is possible that it lies with physicians' likelihood of referring older adults for specialty services for anxiety symptoms. Perhaps they are less comfortable treating these symptoms compared with depressive symptoms. It is also possible that older adults with anxiety problems are more amenable to using specialty mental health services compared to those with depression. A previous study comparing older adults' engagement in mental health treatment lends some support to this suggestion (Bartels et al., 2004). This multi-site randomized trial examined how engaged older adults were in treatment within an integrated model of care compared with an enhanced referral model. The integrated model of care was offered in primary care settings while the enhanced referral model was offered in specialty mental health clinics. The study found significantly greater engagement in the integrated care model compared to the enhanced referral model for those in the depression, at-risk

drinking, and dual diagnosis groups, but no difference for those in the anxiety disorder group. In fact, the trend for anxious individuals was toward greater engagement in the enhanced referral model. While this is a rather indirect assessment of the treatment preferences of older adults with anxiety disorders, it does suggest that they may be quite willing to receive services outside of the primary care setting. The rate of specialty mental health service use found in my study is particularly encouraging given evidence that specialty services are more likely to provide effective treatment for anxiety problems (Issakidis & Andrews, 2002). However, this encouragement is tempered by the overall low rates of service use among anxious older adults, which remains a significant problem.

Predictors of Mental Health Service Use by Older Adults with Anxiety

Given this demonstrated underutilization of mental health services by older adults with anxiety, the next goal of this project was to provide some insight into the characteristics of those who did and did not use services. Based on Andersen's (2008) behavioural model of health services use, mental health need variables were the strongest predictors of service use. Among these need variables, having a comorbid mood disorder was the strongest predictor of service use by those with anxiety, followed by lower levels of self-rated mental health and greater severity of anxiety symptoms. The issue of comorbid anxiety and depression has been receiving increasing attention among researchers and clinicians. Comorbid anxiety and mood disorders are highly prevalent in late-life (Beekman et al., 2000; Byers, Yaffe, Covinsky, Friedman, & Bruce, 2010), and are associated with lower well-being and greater impairment among these older adults (Cairney, Corna, Veldhuizen, Herrmann, & Streiner, 2008). Research examining the

temporal onset of anxiety and mood disorders among those with comorbidity also suggests that anxiety disorders often precede the onset of depression (Lenze et al., 2005). In addition, comorbid anxiety disorders are associated with greater suicide risk (Johnson, Weissman, & Klerman, 1990) and poorer social functioning among older adults with mood disorders (Lenze et al., 2000). These findings support the need for screening for and treatment of comorbidity among older adults with anxiety disorders, as well as the assessment and treatment of anxiety symptoms among older adults with mood disorders.

It is encouraging that indicators of need for services were the strongest predictors of service use. However, the low rates of service use among anxious older adults suggest that a large proportion who may need services are not receiving them. While older adults generally hold positive attitudes and beliefs about mental health services (Mackenzie et al., 2008), they may not view their own anxiety as warranting these services. Given findings of low rates of perceived need for services by both older adults (Mackenzie, Pagura, & Sareen, 2010) and adults with anxiety disorders (Issakidis & Andrews, 2002; Mojtabai, Olfson, & Mechanic, 2002), perceived need is a likely contributor to the low rates of service use among older adults with anxiety problems. It should be noted that it is possible that older adults' perceived need for treatment is less than younger adults' because symptoms are less severe or their coping is more effective. Evidence does indicate that there tends to be an improvement in emotional regulation with increasing age (Blanchard-Fields & Coats, 2008; Phillips, Henry, Hosie, & Milne, 2006). There is also some evidence of lower levels of disability associated with anxiety disorders compared to depression (Bassett, Chase, Folstein, & Regier, 1998), which may result in lower levels of perceived need. Nevertheless, the results of the present research highlight

the need for increased public education regarding anxiety in older adulthood and increased screening for anxiety in older adults at the primary care level. It is also important to note that the current study found similar results for older adults who reported clinically significant anxiety symptoms as for those who met criteria for an anxiety disorder. This finding suggests that it is important to assess anxiety more generally in older adults rather than focusing solely on anxiety disorder diagnoses.

Finally, this study also found that lower levels of social support predicted service use, although this was no longer significant once need variables were included in the analyses. Other researchers have found stronger relationships between social support and service use by older adults in general (Phillips & Murrell, 1994; Pickard, 2006). Given that anxiety disorders often have a social anxiety component, further research into the relationship between service use and various aspects of social support (e.g., emotional support, etc.) is necessary in order to clarify this relationship.

Levels of Social Support among Older Adults with Anxiety Disorders

In response to this need for further research regarding mental health and social support, the next goal of this project was to examine the perceived levels of social support among older adults with anxiety disorders. Social support has been found to be an important correlate of depression among older adults (Glass, Mendes de Leon, Bassuk, & Berkman, 2006; Tikkainen & Heikkinen, 2005; Vanderhorst & McLaren, 2005), and research is beginning to find similar associations among older adults with anxiety (Beekman et al., 1998; de Beurs et al., 2001). However, little is known about how different types of social support are related to anxiety disorders and their treatment, and whether these relationships might differ by type of anxiety disorder.

Research examining social support and health often includes two main components of support: structural social support and functional social support (Sherbourne & Stewart, 1991). Structural support refers to the presence and quantity of social relationships and includes factors such as the size of the social network and frequency of social contacts. Function refers to the degree to which these relationships serve particular functions for the individual, such as providing affection or information. The CCHS 1.2 survey contains the Medical Outcomes Study (MOS)-Social Support Survey (Sherbourne & Stewart, 1991) as a measure of social support. The MOS-Social Support Survey includes the number of close family and friends as a measure of structural social support, and four subscales measuring dimensions of functional social support: (1) emotional/informational support, (2) tangible support, (3) positive social interactions, and (4) affection.

The current study found that older adults meeting criteria for a past-year anxiety disorder (panic disorder, social phobia, or agoraphobia) had lower levels of all four types of functional social support compared to those without a mental disorder. This relationship was particularly strong for older adults with social phobia compared with those with agoraphobia and panic disorder. These findings are particularly important given the potential impact of a lack of social support on the quality of life of older adults with anxiety disorders. Among older adults, social support has been related to many aspects of physical health (Bowling, 1991; Tomaka, Thompson, & Palacios, 2006) and to negatively related to mortality (Blazer, 1982). Unfortunately, due to the cross-sectional nature of the data, the current research cannot determine the direction of the relationship between social support and anxiety among older adults. It is possible that low levels of

social support increase the risk for anxiety disorders, and that people with anxiety disorders are at risk for losing social support. Exploring this relationship longitudinally is an important area for future research.

Social Support Variables as Predictors of Mental Health Service Use for Anxiety Disorders

The next goal of this study was to examine social support variables as correlates of the use of mental health services by individuals with anxiety disorders, and to then explore whether age interacts with social support in predicting this service use. Two of the measures of functional social support, emotional/informational support and positive social interaction, were negatively related of the use of services by adults with anxiety disorders. With regard to the possible interactions between age and the various types of social support in predicting the use of mental health services, only one of five interactions (between age and tangible support) was significant. These findings support previous research indicating a negative relationship between level of social support and the use of mental health services (Maulik, Eaton, & Bradshaw, 2009; Roness, Mykletun, & Dahl, 2005; ten Have, Vollenbergh, Bijl, & Ormel, 2002), and suggest that these relationships likely hold throughout the lifespan.

Researchers and theorists have long suggested that the presence of social support enhances one's ability to cope and provides a buffer against stressors (House, Umberson, & Landis, 1988; Kessler, Price, & Wortman, 1985). This may be at least a partial reason for why those with more social support were less likely to seek professional help. In addition to this, there is strong empirical support that the need for positive and significant interpersonal relationships is a fundamental human drive and that the lack of fulfillment

of this need is inherently stressful (Baumeister & Leary, 1995). Given this, the results of the current study highlight the importance of decreasing social isolation and loneliness in older adults and working to improve the quality of their social relationships as a preventative measure against anxiety disorders. In addition, this indicates that increasing social support and social skills training are likely important elements of anxiety treatment programs for young and old alike.

Treatment Satisfaction, Perceived Treatment Effectiveness, and Dropout among Older Users of Mental Health Services

As mentioned above, (2008) Andersen's behavioural model of health services use highlights treatment outcome as an important component of the model. Therefore, following the examination of the use of mental health services by anxious older adults, the next step was to explore some of the outcomes associated with service use. To date, very little research has focused on how older adults perceive the mental health services they receive, or on the level of treatment dropout among this population. Due to this lack of previous research and limitations due to sample size, the current research focuses on all older adults in the CCHS-1.2 who used mental health services in the past year, rather than specifically on older adults with anxiety.

In order to better understand treatment outcome for older adults, the first aim of this third study was to examine the prevalence of treatment satisfaction, perceived treatment effectiveness, and treatment dropout among older users of mental health services. These three outcomes have been shown to be important factors in determining the quality of care (Lebow, 1983) and subsequent functioning of individuals who have received treatment. Low levels of satisfaction with services have been linked to a number

of other mental health care outcomes such as reduced attendance of follow-up appointments and greater likelihood of readmission to psychiatric inpatient services (Druss, Rosenheck, & Stolar, 1999). Aside from not receiving the full benefit of the treatment, dropping out of treatment may leave both clients and clinicians with greater psychological distress due to feelings of failure (Ogrodniczuk, Joyce, & Piper, 2005). In addition, missed appointments which often accompany dropouts also result in financial losses and increased waitlist times (Barrett, Chua, Crits-Christoph, Gibbons, & Thompson, 2008).

The present study found that older adults are generally satisfied with mental health services and perceive them to be effective. Over 88% of older mental health service users reported that they were satisfied with the treatment they received in the past year and 84% reported that the treatment they received was effective. This included all older adults who used services in the past year regardless of whether they completed, continued, or dropped out of treatment during that year. The current study also found that approximately 84% of older adults using mental health services in the past year either remained in treatment or completed treatment. These results are consistent with previous findings regarding treatment satisfaction among older adults (Chen et al., 2006) and older adults' beliefs concerning the effectiveness of mental health treatment (Mackenzie, Scott, Mather, & Sareen, 2008). The dropout rate in this study is also lower than rates found for the general population (Edlund et al., 2002; Olfson et al., 2009; J. Wang, 2007). While these results are encouraging, they also indicate that there is room for improvement, with 12-16% of older adults reporting being neutral/dissatisfied or experiencing treatment as ineffective and 16% dropping out of treatment. Given this, developing an understanding

of the factors associated with these outcomes is necessary in order to work toward improvement.

Individual Characteristics Associated with Treatment Outcomes

While contextual factors such as quality of care clearly influence treatment outcomes, individual characteristics also impact outcomes and should be examined in outcome research (Corrigan, 1990). Based on Andersen's (2008) model, this study examined the predisposing, enabling, and need variables associated with each of the three treatment outcomes. The results of these analyses indicate that individual characteristics likely play only a small role in the outcomes of mental health service use for older adults. Contrary to my hypothesis that need variables would be negatively related treatment satisfaction, perceived treatment effectiveness, and dropout, none of these variables (i.e., chronic health conditions, mental disorder, or psychological distress) was related to any of the three outcomes. While there has been little previous research conducted in this area, these results are consistent with one study involving older adults, which found that mental health diagnosis was not related to treatment satisfaction (Chen et al., 2006). Given that relationships have been found between need variables and treatment outcomes for younger adults (Carlson, Shaul, Eisen, & Cleary, 2002; Urbanoski, Rush, Wild, Bassani, & Castel, 2007), the current results suggest that need factors may have less effect on these outcomes with increasing age. However, further research is needed to directly examine this possibility.

While need variables were not significant predictors of the treatment outcomes, greater social support did predict greater treatment satisfaction and greater perceived treatment effectiveness. The relationship between social support and these treatment

outcomes has not been previously studied among older adults. However, the present results find some support in previous research examining adults' satisfaction with mental health services (Blenkiron & Hammill, 2003; Redmond, Galea, & Delva, 2009; Ruggeri, Gater, Bisoffi, Barbui, & Tansella, 2002) and medical health services (Barry et al., 2007; Da Costa et al., 1999). Given my other findings of relationships between social support and both the presence of an anxiety disorder and the use of mental health services for older adults, it appears that social support should be an important consideration in mental health service delivery to older adults.

Given the relatively weak relationships between individual characteristics and treatment outcomes, it is likely that these outcomes are more strongly affected by contextual characteristics. Previous research not specific to older adults has found relationships between these mental health service outcomes and staff characteristics (Corrigan, 1990), leadership style of mental health team leaders (Corrigan, Lickey, Champion, & Rashid, 2000), clinic characteristics (Sullivan & Spritzer, 1997), and treatment modality (Corrigan, 1990; Edlund et al., 2002). In addition, the fact that older adults will represent an increasingly large percentage of the population (Bélanger, Laurent, & Caron-Malenfant, 2005) is itself a contextual characteristic which is likely to impact treatment outcomes. It will be important to examine these and other contextual characteristics in order to fully understand how they impact older adults' experiences of mental health services.

Another interesting finding from this third study is that treatment satisfaction and perceived treatment effectiveness were the strongest predictors of treatment dropout. In fact, the odds of dropping out of services for those who were neutral/dissatisfied with

treatment, or who found it ineffective, were 3.5 to 4 times greater than the odds for those who were satisfied or who perceived treatment to be effective. These findings emphasize the need for greater understanding of the factors that lead to treatment satisfaction and perceived effectiveness among older adults. Due to limited resources, clinicians often must choose from many potential strategies for reducing treatment dropout. However, it is often not clear which strategy will be most effective (Ogrodniczuk et al., 2005). With information regarding the individual and contextual characteristics of those who drop out of services, it is my hope that clinicians will be better able to determine the best strategies for reducing dropout rates among older adults.

The results of this research project should be interpreted with a number of limitations in mind. These limitations have been discussed within each of the three studies. However, some of the key limitations are: (1) the studies used retrospective self report data, which are susceptible to recall bias; (2) the data are cross-sectional and do not provide information regarding potential causal relationships between the variables; (3) only three anxiety disorders were assessed in the survey (social phobia, panic disorder, and agoraphobia), excluding a significant subgroup of older adults with anxiety problems (e.g., generalized anxiety disorder); and (4) the survey data did not include specific information about the type of treatment older adults received from service providers or information regarding the mental health service system.

Given these limitations, one direction for future research would be the use of longitudinal data, which would provide valuable information about the factors which have a causal impact on the use of services by older adults with anxiety. Longitudinal research examining treatment factors that lead to outcomes such as satisfaction and

dropout would also provide important insight into the use of services by older adults. Similarly, examination of the use of services by older adults with anxiety problems using models that focus on the process of help-seeking (Goldberg & Huxley, 1980; Pescosolido, 1992) and the psychological aspects of help-seeking behaviour (Ajzen, 1985; Rosenstock, 1966) will help to provide a more complete picture of this service use.

Conclusion

The present research project takes a significant step toward understanding the use of mental health services by anxious older adults. Among the main findings of this project were that older adults with significant anxiety were less likely to use mental health services than those with mood disorders, and that indicators of need for services were the strongest predictors of service use. With respect to social support, I found that functional aspects of social support were negatively related to the presence of an anxiety disorder among older adults, and that lower levels of perceived emotional/informational support and positive social interactions were related to greater use of mental health services for adults throughout the lifespan. Finally, I found that older adults were generally satisfied with the mental health services they received, perceived these services as helpful, and were likely to remain in treatment. Individual characteristics in the current research likely played only a small role in these outcomes, suggesting that contextual factors should be further explored.

Currently, one major barrier to effective research and dissemination of research findings is the lack of awareness of late-life anxiety (Lenze & Wetherell, 2009). There remains a drastic shortage of healthcare professionals and researchers with training in geriatric mental health issues (Bartels, 2003), and late-life anxiety is often neglected even

among those who do have this training (Lenze & Wetherell, 2009). This is unfortunate given the growing body of evidence that mental health treatment for older adults is indeed effective (Pinquart, Duberstein, & Lyness, 2007; Stanley et al., 2009). Given the dearth of research examining the use of mental health services among older adults with anxiety problems, this project provides new and important information that can inform policy, clinical work, and future research.

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