

A Multidimensional Profile of Canadians with Social Anxiety Disorder:  
Sociodemographics, Social Support, and Stress

by

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## Abstract

This dissertation was designed to present a multidimensional profile of determinants of well-being for individuals with social anxiety disorder. Using the Canadian Community Health Survey (CCHS) cycle 2.1, a series of three studies was conducted. Study 1 examined prevalence rates and associated sociodemographic variables for social anxiety disorder. It was found that individuals with this disorder experience significant depression comorbidity, as well as impairment in domains such as education, employment, and income. Females with social anxiety disorder may be more marginalized, as they are more likely to be single parents and have a lower income than males with the disorder. Study 2 examined social support within the context of social anxiety disorder. It was found that both socially anxious males and females had low levels of perceived social support, and that males reported lower social support than females. For females with social anxiety disorder, a reduction in distress was associated with an increase in positive social interactions. Finally, Study 3 examined variables related to stress and coping for individuals with social anxiety disorder. It was shown that this disorder is associated with lower coping self-efficacy, a specific pattern of sources of stress, and using different coping methods than non-socially anxious individuals. Females with social anxiety disorder were likely to report their most important sources of stress to be related to their families and males with social anxiety disorder were more likely to list work as a stressor, and were more likely to drink alcohol to cope. Taken together, these findings indicate that individuals with social anxiety disorder have additional variables affecting their quality of life beyond that of their social anxiety. These findings can be of benefit to practitioners,

as it provides a more complete illustration of the lives of their patients. This knowledge, particularly concerning stress and coping variables, can be of use in treatment planning. As a result of this study, further research might investigate additional determinants of well-being, such as physical ailments and quality of social support.

Keywords: social anxiety disorder, prevalence, demographics, gender, social support, stress, coping, quality of life

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It should be noted that Study 1: “Social anxiety disorder in the Canadian population: Exploring gender differences in sociodemographic profile” has been published in the Journal of Anxiety Disorders.

## Co-Authorship Statement

I, Meagan MacKenzie, hold a principle author status for all manuscript chapters (Chapters 3-5) in my thesis. I am the primary author on all three papers, with my supervisor, Dr. Ken Fowler, listed as a coauthor. In all three cases, I am responsible for the development, key ideas, primary contributions, writing, data analyses, and interpretation. The contributions of Dr. Fowler were through the provision of comments on each draft and recommendations to make certain that the division between the papers was acceptable and that their content would fit with the targeted journals. I am also the author of this manuscript, integrating the papers into a coherent thesis.

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## Chapter 1: Introduction

Social anxiety disorder, or social phobia, is typically described as persistent negative-self judgment combined with worry about and fear of social interactions or performance situations (e.g. Rapee & Heimberg, 1997; Rowa & Antony, 2005). It is characterized by unassertive and avoidant behaviours designed to protect the self from fears of negative evaluation by others (e.g., Alden & Wallace, 1995; Alden & Bieling, 1998; Hope, Sigler, Penn, & Meier, 1998; Kocovski & Endler, 2000; Meleshko & Alden, 1993). This chronic condition is commonly cited as the most common anxiety disorder (Stein & Stein, 2008) and the fourth most common psychiatric disorder and is reported to affect approximately 7-13% of individuals at least once in their lifetime (CCHS 1.2, 2002; Kessler et al., 2005). The fears associated with social anxiety often result in individuals enduring social situations with significant distress, or avoiding these situations entirely, despite awareness that the fear is excessive or unreasonable. By definition, social anxiety disorder is associated with clinically significant symptomatic distress and functional impairment in social, occupational, or other domains (American Psychiatric Association, 2013). Individuals with social anxiety have higher rates of financial dependence, suicidal ideation, lifetime comorbidity with other major disorders, medical treatment, and lower rates of marriage as compared to individuals with no psychiatric disorder (Schneier, Johnson, Hornig, Liebowitz, & Weissman, 1992), and it is likely that this high degree of functional impairment prevents these individuals from thriving and flourishing in their lives.

Clinical research in psychology typically assesses outcomes such as diagnostic and symptom measures, and while these indices are valuable sources of information, they do not provide a full representation of an individual's life. A patient's perception of clinical gains may be a better indicator of his/her mental health status. Following treatment, patients are more likely to judge the outcomes based on their feelings of subjective well-being. Furthermore, although therapeutic interventions may result in statistically significant reductions in symptomology, it must be noted that distress is not the bipolar opposite of well-being or a high subjective quality of life. There is no consensus for the definition of quality of life; however, researchers seem to agree that it is a concept composed of several elements. These elements are often categorized as psychological (e.g., mood, emotional distress), occupational (e.g., paid and unpaid work), social (e.g., relationships, leisure activities), and physical (e.g., mobility, pain).

Research in the area of social anxiety disorder has identified psychological factors that may affect quality of life, such as increased general distress, high rates of comorbid depression, anxiety, and substance use disorders, and reduced experience of positive affect. Unfortunately, there is a lack of information pertaining to other facets of quality of life for individuals with social anxiety disorder, such as sociodemographic indicators (e.g., occupational status, educational attainment, marital status, etc.), integration of the individual in their social context (e.g., community involvement, perceived social support, etc.), and physical health status (e.g., sources of stress and coping behaviours). Because social anxiety disorder has a chronic course and significant life impairment, quality of life is particularly important to examine. The reduction of anxiety symptoms through

therapeutic interventions alone is not sufficient to ensure that these individuals are thriving. Non-therapeutic indicators of quality of life for socially anxious individuals must be identified in order to educate and enable them to self-direct their own well-being.

Therefore, the overall objective of this dissertation is to provide a multidimensional profile of individuals with social anxiety, including sociodemographic correlates, social support availability, and information about additional stressors that these individuals have and how they cope with stress in general. These variables will then be examined with respect to whether they predict distress within the context of social anxiety. This information will provide a more complete profile of a socially anxious person's quality of life, and in turn provide information about how individuals can reduce their own anxiety and increase their well-being outside of, or in addition to, a therapeutic context.

### 1.1 Social Anxiety Disorder Prevalence and Sociodemographics

Variable prevalence rates have been reported since social anxiety disorder was first introduced in the DSM-III (Kessler et al., 2005), and these inconsistencies may be due to methodological explanations, namely different diagnostic criteria, assessment methods, prevalence periods, and different cultural and geographical locations. Using DSM-III criteria, most researchers reported lifetime prevalence rates of approximately 0.53-3.0% (see Chapman et al., 1995 for a review). Social phobia prevalence estimates rose as the DSM was edited: Kessler and colleagues (1994) used DSM-III-R criteria to identify individuals with social phobia, and reported a lifetime prevalence of 13%. More recently, Hofmann et al. (2010) reviewed international prevalence rates and reported a

range of 0.02 to 7.9% in studies using DSM-IV criteria for social phobia. The authors noted that some of the lowest ranges were found in Asian samples and the higher prevalence rates were found in American samples; however, there were no Canadian statistics in this review for comparison. Several Canadian epidemiological studies present prevalence of social anxiety disorder (e.g., Dick, Sowa, Bland, & Newman, 1994; Offord et al., 1996; Stein, Walker, & Forde, 1994; 1996) and lifetime social anxiety disorder prevalence estimates for Canadians in these studies ranged from 1.7 to 7.1%.

Existing international epidemiological research has shown that the presence of social anxiety disorder is associated with a particular sociodemographic profile, indicating impairment and marginalization across several life domains. Individuals with social anxiety disorder are likely to be single and have impairment in the areas of education and employment (e.g., Montgomery, Haemmerlie, & Edwards, 1991; Schneier, Heckelman, Garfinkel, Campeas, & et al, 1994; Schneier et al., 1992; Wittchen, Fuetsch, Sonntag, Müller, & Liebowitz, 2000). Those who are married often report experiencing some kind of marital dysfunction (Schneier et al., 1994, 1992; Walker & Kjernisted, 2000; Wittchen, Stein, & Kessler, 1999). It is likely that there are gender differences for these social and demographic variables, any of which can contribute to an individual's subjective quality of life. Canadian and international research consistently report higher prevalence of social anxiety disorder for females than for males (see Furmark et al., 1999), but these studies do not further examine demographic differences between socially anxious males and females. There are three Canadian studies featuring both prevalence and demographic variables for social anxiety disorder using nationally representative data

(i.e., Chartrand, Cox, El-Gabalawy, & Clara, 2011; Cox, Clara, Sareen, & Stein, 2008; Shields, 2004); however these studies do not present gender differences. These gender differences in prevalence and sociodemographics will be examined in the present research in order to obtain a more accurate representation of the mental health status of Canadians with social anxiety disorder.

### 1.2 Social Anxiety and Social Functioning

Social support can be a nebulous concept and difficult to define. There appears to be no commonly agreed upon definition or operationalization; however, social support has been conceptualized as both a global construct as well as subtyped, including such facets as affectionate support, tangible support, positive social interactions, emotional support, and informational support. Social support is often defined as the existence or availability of people on whom we can rely, specifically people who care about and value us (I. G. Sarason, Levine, Basham, & Sarason, 1983). Decades of research in health, social, and clinical psychology have demonstrated that positive social support is associated with positive outcomes, such as better physical health and psychological wellbeing (see Taylor, 2011 for a review), both of which contribute to subjective quality of life. Cohen and Wills' (1985) stress buffering hypothesis proposes that this is largely due to social support acting as a buffer, or protective factor, against the negative physical and psychological effects of stress. As indicated above, social anxiety disorder is associated with significant social impairments, and the experience of social anxiety inhibits the development and maintenance of social networks in many ways. A lack of



sufficient social support, either perceived or actual, may contribute to an increase in overall distress.

1.2.1 Social Impairment. Discomfort in social situations impacts the quantity of social relationships that individuals with social anxiety are able to develop. Research across both community (Lampe, Slade, Issakidis, & Andrews, 2003; Schneier et al., 1992) and clinical samples (Wittchen & Beloch, 1996; Wittchen et al., 2000) has established that those with social anxiety are less likely to be married, less likely to have a boyfriend or girlfriend, and report having fewer close friends (Montgomery et al., 1991).

In addition to social anxiety affecting the quantity of social relationships, there is also some evidence which suggests that the quality of social relationships may also be impaired. Research has indicated that individuals with social anxiety report lower social support satisfaction in dating and marriage relationships, friendships, family relationships, and other social relationships (e.g., Davidson, Hughes, George, & Blazer, 1993; Davila & Beck, 2002; Eng, Coles, Heimberg, & Safren, 2005; Schneier et al., 1994; Walker & Kjernisted, 2000; Wittchen et al., 1999). As compared to non-anxious individuals, socially anxious individuals rate their romantic relationships as lower in emotional intimacy, characterized by feelings of neglect, loneliness, and distance from one's partner (Wenzel, 2002). As for non-romantic relationships, Turner and colleagues found that 69% of surveyed socially anxious individuals reported that their anxiety was a cause of interference in their social relationships (Turner, Beidel, Dancu, & Keys, 1986). They are also less likely to report experiencing emotional closeness and security with non-family members of their social network (Montgomery et al., 1991). In addition, they report that

they perceive low support from their social networks, and are unsatisfied with their perceived social support (Cuming & Rapee, 2010; Torgrud et al., 2004).

Perceptions of social support have physical and mental health correlates (e.g., Cohen & Wills, 1985; Fawzy, Fawzy, Arndt, & Pasnau, 1995; Kessler, Price, & Wortman, 1985), and perceptions of positive support are also related to a general positive view of relationships (Sarason et al., 1991). It has been suggested that people in nonclinical samples who report low perceived social support actually underestimate or are unable to fully recognize available support (Lakey, Moineau, & Drew, 1992). This is likely to also be the case for socially anxious individuals. Lakey and Cassady (1990) found that individuals who perceived low social support interpreted supportive behaviours more negatively than people who perceived high social support. Additionally, the low support participants remembered a lower proportion of supportive behaviours perceived as helpful than those who believed they had high levels of social support.

1.2.2 Constrained Interpersonal Style. The tendencies to misperceive social interactions, demonstrate self-protective interactions, and engage in safety behaviours (Clark & Arkowitz, 1975; Hope, Heimberg, & Kenny, 1995; Leary & Kowalski, 1995; Norton & Hope, 2001; Rapee & Lim, 1992), culminate in a constrained interpersonal style. Safety behaviours are avoidance or control mechanisms used by individuals with social anxiety and typically include becoming withdrawn, avoiding eye contact and looking at emotional faces in general (Chen, Ehlers, Clark, & Mansell, 2002; Horley, Williams, Gonsalvez, & Gordon, 2003; Wells et al., 1995). Laboratory studies have indicated that this tendency towards constrained behaviour leads to socially anxious

participants being perceived as less friendly, less likable, less appropriate, and more likely to produce discomfort in confederates than non-anxious individuals (Alden & Bieling, 1998; Meleshko & Alden, 1993; Cheek & Buss, 1981; Jones, Briggs, & Smith, 1986; Leary & Kowalski, 1995).

In addition to safety behaviours, social anxiety is also associated with constrained communication. As compared to individuals with low social anxiety, high social anxiety in undergraduates and community samples is associated with negative communication behaviours (Wenzel, Graff-Dolezal, Macho, & Brendle, 2005); low ratings of closeness, supportiveness, and ability to engage in appropriate conflict resolution with their friends, romantic partners, and family (Davila & Beck, 2002); and lower levels of self and emotional disclosure in both romantic relationships and close friendships (Cuming & Rapee, 2010).

Self-disclosure is related to more positive social support and interactions (Cozby, 1973), therefore a reluctance to share personal information as seen in social anxiety (e.g., Alden & Bieling, 1998; DePaulo, Epstein, & LeMay, 1990; Meleshko & Alden, 1993; Reno & Kenny, 1992) may contribute to the onset of distress and depression. Self-disclosure research in this area generally focuses only on female participants; however there is some indication that nonclinical males generally tend to disclose less emotional information than nonclinical females (Dindia & Allen, 1992; Reis, 1998). The ways in which socially anxious males and females differentially navigate their social relationships are worthy of further study, as females are more likely than males to provide social

support (Thoits, 1995) and to seek social support to cope with stress (Tamres, Janicki, & Helgeson, 2002).

1.2.3 Overly Dependent Interpersonal Style. Although a great deal of research has focused on the avoidant and constrained interpersonal behaviours associated with social anxiety disorder, another behavioural profile has been identified that is often seen in depression. Socially anxious individuals are motivated to maintain closeness with others (Alden, 2001; Schlenker & Leary, 1982), which may manifest as excessive agreeableness (Arkin, Lake, & Baumgardner, 1986). This motivation to maintain affiliation with other people may present as interpersonal dependency, which is also associated with interpersonal stress (Bornstein, 1994; Bruch, Rivet, Heimberg, Hunt, & McIntosh, 1999; Hirschfeld, Klerman, Chodoff, Korchin, & Barrett, 1976). Beck and colleagues (Beck & Davila, 2003; Davila & Beck, 2002; D. M. Grant, Beck, Farrow, & Davila, 2007) have shown that in interactions with close others, social anxiety is associated with greater interpersonal dependency. These authors suggest that the paradoxical finding of socially anxious individuals being both avoidant and dependent may be due to the researchers' examination of behaviours with close others. Previous research demonstrating avoidance had tended to focus on interactions between socially anxious individuals and confederates or less close friends. This finding of greater dependency may be supported by findings regarding comorbidity between social anxiety and dependent personality disorder (Bornstein, 1995). Excessively dependent behaviours are seen in interactions between socially anxious individuals and their close friends (e.g., Bruch et al., 1999; Darcy, Davila, & Beck, 2005) showing that socially anxious people

maladaptively rely on their close friends, romantic partners, and family as compared to strangers. This dependency on close others for support may generate social dysfunction, and place stress on the individuals' social support network (Coyne, 1976; Gotlib & Hammen, 1992).

In sum, socially anxious individuals act avoidant and aloof in their dealings with strangers and acquaintances, and overly dependent and needy with people who are considered to be "close others" (Bornstein, 1995; Bruch et al., 1999; Darcy et al., 2005; Davila & Beck, 2002). Moreover, these individuals have been shown to engage in appropriate social behaviours if they are motivated to maintain closeness in a situation where their fear of rejection is reduced (e.g., Alden & Bieling, 1998; DePaulo et al., 1990), indicating that some individuals with social anxiety may be able to maintain functional relationships. Alden (2001) suggests that individuals with social anxiety disorder act strategically, namely that their behaviour will change depending on whether they are acting on the goal of maintaining closeness, or whether they are trying to avoid negative evaluation. Regardless of which mechanisms contribute to social dysfunction, interpersonal impairment can result in reduced quality of life and feelings of depression and general distress. Lazarus and Folkman's (1984) general stress and coping theory proposes that social support promotes adaptive coping during stressful life events, therefore examining the relative effects of social support and coping in predicting wellbeing is also warranted.

### 1.3 Social Anxiety and Coping with Stress

Stress has been researched consistently for decades, likely because of its detrimental effects on the individual. Stress is associated with negative physical and mental health outcomes, and people who have social impairments, such as those with social anxiety disorder, experience a great deal of these negative outcomes. Separated and divorced individuals report the highest rates of both acute and chronic health conditions, are overrepresented in inpatient and outpatient psychiatric populations, and experience high levels of depression and general distress (Bachrach, 1975; Glenn & Weaver, 1981; Verbrugge, 1979). It is possible that those with social anxiety disorder have a different experience of stress than non-socially anxious individuals; not only do they have stress related to their own mental health, but also stress related to their interpersonal difficulties, leading to poorer physical and mental health.

1.3.1 Self-Efficacy. Self-efficacy is the belief that an individual has the ability to bring about change in his/her life (Bandura, 1977), and it has been shown to mediate stress-induced immunosuppression and negative physical health outcomes (Bandura, Reese, & Adams, 1982; Wiedenfeld et al., 1990). Self-efficacy is often examined within the context of stress and coping, and lower subjective ratings of social interaction self-efficacy are seen in individuals with social anxiety. The self-presentational theory of social anxiety (Leary & Kowalski, 1995; Schlenker & Leary, 1982), posits that social anxiety is a result of being highly motivated to impress others in social situations while doubting one's ability to do so, which is supported by empirical evidence (e.g., Kashdan & Roberts, 2004; Maddux, Norton, & Leary, 1988; Muris, 2002). In other words,

although individuals with social anxiety have a high desire for affiliation, their social self-efficacy is low. Self-efficacy may be best assessed in a context-dependent manner and despite the evidence indicating a low level of social self-efficacy in individuals with social anxiety, there is a lack of research examining coping self-efficacy in individuals with social anxiety disorder. Coping self-efficacy is the belief in one's ability to cope effectively when in a challenging situation, and is related to an increase in problem solving and well-being, as well as a reduction in stress (Cieslak, Benight, & Caden Lehman, 2008; Endler, Macrodimitris, & Kocovski, 2000; Wiedenfeld et al., 1990).

1.3.2 Coping Methods. The manner in which a person deals with his/her stress also has physical and mental health consequences. Lazarus and Folkman's (1984) definition of coping discriminates between emotion-focused or problem-focused behaviours. Emotion-focused coping is described as cognitive efforts to manage emotional distress, such as avoidance or selective attention. Problem-focused coping includes behaviours or cognitions directed at solving a problem, including defining the problem, and generating alternate solutions. These emotion-focused and problem-focused strategies can be categorized as either functional or dysfunctional. Functional coping is some method that results in a reduction in distress, and dysfunctional coping is avoidance or escape which results in short term relief, but not a long term reduction of distress (Carver, Scheier, & Weintraub, 1989; Thwaites & Freeston, 2005; Wells & Clark, 1997).

It can be difficult to classify coping behaviours as adaptive, or maladaptive, as they are often context and situation specific. Within the context of social anxiety disorder,

it appears as though there are some behaviours that can be labeled maladaptive more easily than others, such as those which have harmful health outcomes. Evidence suggests that some individuals with social anxiety disorder use substances such as alcohol and illicit drugs to cope with the stress associated with the disorder (e.g., Buckner, Schmidt, Bobadilla, & Taylor, 2006; Buckner & Schmidt, 2009). These types of coping methods can be classified as safety behaviours, which are self-protective behaviours that temporarily provide relief, but have the paradoxical effect of maintaining social anxiety in the long term (Wells et al., 1995). Thwaites and Freeston (2005) distinguished safety behaviours from adaptive coping on the basis of whether the behaviour is repeated, excessive, or inappropriate. In addition to substance use, safety behaviours can include: avoiding eye contact, becoming withdrawn, speaking quickly, and nervous laughter. There are many empirical studies investigating the use of safety behaviours to cope with the stress of social situations (e.g., Alden & Bieling, 1998; Eun-Jung, 2005; McManus, Sacadura, & Clark, 2008); however, there is no research to date examining general stress and coping behaviour for individuals with social anxiety.

#### 1.4 The Current Research

The overall objective of this dissertation is to provide a multidimensional profile of determinants of well-being in social anxiety. There are three specific sets of research questions: (1) What is the prevalence of social anxiety disorder, and what are the associated sociodemographic characteristics of individuals with clinical levels of social anxiety disorder? (2) How much perceived social support do individuals with social anxiety have, and how does their perceived social support contribute to feelings of



general distress? and (3) What other sources of stress do individuals with social anxiety have, and how do they cope with stress? Additionally, how do stress and coping variables contribute to feelings of general distress over and above the contribution of social support?

These sets of research questions will be examined through a series of studies. Chapter 2 describes an unsuccessful attempt to collect data from an undergraduate analogue sample. Chapters 3-5 are presented as discrete manuscripts and each chapter investigates one of the three research question sets in turn. Chapter 6 presents a general discussion and conclusions.

This information obtained through the course of this series of studies will provide a great deal of information about the quality of life and subjective well-being experienced by individuals with social anxiety. It is expected that this information will be utilized to educate clinical and nonclinical populations about the nature of social anxiety, and provide them with some tools to reduce their general distress and to increase their subjective well-being, allowing them to flourish in their daily lives.

## Chapter 2: Preliminary Analogue Sample

In order to assess prevalence, sociodemographics, social support, and coping variables, the present research began with an analogue study of undergraduates. The purpose of this data collection was to collect information about the mental health statuses of students with symptoms suggestive of social anxiety disorder. It was expected that such a sample of convenience would provide results that would be generalizable to the clinically socially anxious population.

Social anxiety exists along such a continuum, ranging from shyness to social anxiety disorder, and research has consistently demonstrated that individuals in the general population frequently experience social anxiety symptoms (e.g., Hofmann & Roth, 1996; Purdon, Antony, Monteiro, & Swinson, 2001). Using a college sample, Purdon and colleagues demonstrated that the majority of participants reported periodically experiencing social anxiety symptoms such as blushing, sweating, and nervous laughter. Additional research has shown that over half of nonclinical individuals surveyed described feeling social anxiety at least occasionally (Hofmann & Roth, 1996; Stein, Walker, & Forde, 1994). Due to the prevalence and variability of social anxiety in nonclinical individuals, it was expected that using undergraduate samples for the current research would provide enough variance to adequately study social anxiety.

### 2.1 Method

2.1.1 Participants. Participants were recruited from introductory psychology classes, and were asked to participate in return for an entry into a draw for a gift certificate to a local movie theatre.

### 2.1.2 Measures.

2.1.2.1 Demographics. A demographic questionnaire created for this study asked participants to respond to closed-ended questions about their gender, age, marital status, year of study, and ethnicity.

2.1.2.2 Social Anxiety. Several facets of social anxiety symptoms were assessed using two measures. First, the Social Phobia Scale and Social Interaction Anxiety Scale (SPS & SIAS; Mattick & Clark, 1998) were used to assess social anxiety severity, each consisting of 20 items. Participants respond on a five-point scale from not at all to extremely characteristic, and responses are scored such that higher scores indicate greater anxiety pertaining to social situations.

Next, the Liebowitz Social Anxiety Scale (LSAS; Liebowitz, 1987) is a 24-item scale used to assess the range of social interaction and performance situations that individuals with social phobia may fear and/or avoid. Items are rated on anxiety (0 to 3 = none, mild, moderate, severe) and avoidance (0 to 3 = never, occasionally, often, usually). For this study, the total score was used, and higher scores indicate greater anxiety.

2.1.2.3 Depression, Anxiety, and Stress Scales. The 21-Item Depression Anxiety Stress Scales (DASS-21; Antony, Bieling, Cox, Enns, & Swinson, 1998) is a 21-item questionnaire designed to measure depression, anxiety, and stress in adults. It is an abbreviated version of the 42-Item Depression Anxiety and Stress Scales (DASS-42; Lovibond & Lovibond, 1995). This inventory is comprised of three scales: the Depression Scale, the Stress Scale, and the Anxiety Scale. Each scale consists of seven items describing a physiological or emotional experience (e.g., “I experienced trembling

in the hands” or “I felt life was meaningless”). Participants were asked to rate the extent to which each item applied to them over the last week using a Likert scale ranging from 0 (Did not apply to me at all) to 3 (Applied to me very much or most of the time). Higher scores are indicative of greater depression, anxiety, or stress.

2.1.2.4 Social Support. Sense of community belonging was assessed by asking participants “How would you describe your sense of belonging to your local community? Would you say it is very strong, somewhat strong, somewhat weak, very weak?”. Responses were measured on a 4-point scale, ranging from 1 (very strong) to 4 (very weak). Higher scores on this item are indicative of a weaker sense of community attachment. For the number of close friends and family members, participants were asked to provide a number of such people in their lives.

2.1.2.5 Medical Outcomes Study (MOS) Social Support Survey. This is a 19-item scale assessing four subtypes of social support: Emotional/informational support; tangible support; affection; and positive social interaction. Social support was assessed using a 5-point Likert scale ranging from “1 = none of the time” to “5 = all of the time” as having occurred in the past 12 months. Higher subscale scores indicate greater self-reported social support.

2.1.2.6 Cognitive Emotion Regulation Questionnaire. The CERQ (Garnefski, Kraaij, & Spinhoven, 2001) is a 36 item index assessing multiple facets of emotion regulation when faced with negative life events including: self-blame, acceptance, rumination, positive refocusing, refocus on planning, positive reappraisal, putting things into perspective, catastrophizing, and other-blame. Each item is rated from 1(almost

never) to 5 (almost always), with higher scores indicating greater endorsement of the emotion regulation behaviour.

2.1.3 Procedure. Ethics approval was granted by the Memorial University Interdisciplinary Committee on Ethics in Human Research (ICEHR) to collect data from undergraduates using online questionnaires (see Appendix 1). Following recruitment, participants were emailed a link to the online questionnaire battery using online hosting software at Questionpro.com, which included an informed consent form prior to the administration of test items. Respondents were also asked to indicate if they were willing to participate in Phase 2 of this research, which consisted of an interview to obtain qualitative data about the experience of social anxiety as well as their perceptions of social support.

## 2.2 Results and Discussion

A total of 123 undergraduates took part in the online survey. Listwise deletion was used for participants missing large amounts of data. For participants with fewer missing items, the mean of the item was used for substitutions. After inspecting these data in this manner, 78 cases were considered viable for this analysis. Participants ranged in age from 17 to 33 years ( $M = 19.19$ ,  $SD = 2.22$ ), and the majority were female ( $n = 52$ , 66.7%). Most participants were Caucasian ( $n = 69$ , 89.6%) and were in their first year of university ( $n = 47$ , 60.3%) (See Table 2-1 for sample characteristics).

Upon examination of the descriptive statistics for each questionnaire, it was found that this sample of 78 individuals reported a mean of 25.82 ( $SD = 15.89$ ) on the Social Phobia Scale and a mean of 35.18 ( $SD = 17.44$ ) on the Social Interaction Anxiety Scale

(SPS & SIAS; Mattick & Clark, 1998). These means are above the clinical cutoffs for these measures, which are  $\geq 24$  for the SPS and  $\geq 34$  for the SIAS (Heimberg, Mueller, Holt, Hope, & Liebowitz, 1992), indicating that over 50% of the participants in the analogue sample reported a degree of symptoms suggestive of social anxiety disorder (See Table 2-2 for descriptives). Social anxiety disorder prevalence is usually reported as between 7.2-12.1% (Kessler et al., 2005; Ruscio et al., 2008; Shields, 2004; Stein et al., 2001). It is unclear why this sample has such a high prevalence of social anxiety; however, one can speculate as to potential causes. It is feasible that the actual prevalence of social anxiety is very high in this sample. Perhaps individuals with social anxiety self-selected into the study. Although no mention of social anxiety was made during recruitment, socially anxious individuals who received the recruitment speech could have found the online nature of this study appealing. Second, it is possible that there was some malfunction with the online hosting software, where the responses were incorrectly captured. Third, it is conceivable, albeit unlikely, that the prevalence of social anxiety disorder is increasing. Young adults spend a great deal of time online, and this could potentially be creating greater fears related to social interaction.

Despite these data being heavily skewed, respondents who had (a) indicated that they were interested in participating in Phase 2, and (b) had mean scores on the SPS and SIAS greater than the clinical cutoffs were emailed and asked if they would agree to be interviewed ( $n = 33$ ). None of these participants responded. An ethics modification was submitted and approved, and this subgroup was then emailed an open-ended questionnaire asking about their experience of social anxiety and social support. Four

participants responded; however their answers were quite sparse. Given the nature of social anxiety, the lack of response is not surprising, albeit disappointing. Consequently, because this sample was so heavily skewed with socially anxious participants, and considering the time and resource restraints inherent in completing a doctoral degree, the decision was made to disregard this undergraduate sample and analyze data from the Canadian Community Health Survey for the remainder of this research.

Table 2-1

## Sample Characteristics

	Analogue Sample n = 78	
Age, range, mean (SD)	17-33, 19.19	(2.22)
Sex, n (%)		
Female	52	(66.7)
Male	26	(33.3)
Marital status, n (%)		
Married	4	(5.1)
Have boyfriend/girlfriend	32	(41.0)
Single	41	(52.6)
Other	1	(1.3)
Year of study, n (%)		
First year	47	(60.3)
Second year	13	(16.7)
Third year	10	(12.8)
Fourth year	5	(6.4)
Other	3	(3.8)
Ethnicity, n (%)		
Aboriginal	2	(2.6)
Black	2	(2.6)
East Indian	1	(1.3)
Middle Eastern	1	(1.3)
White	69	(89.6)
Other	2	(2.6)



Table 2-2

## Descriptive Statistics for Scales Included in the Analogue Study

	Analogue Sample n = 78		Cronbach's $\alpha$
Social anxiety, mean (SD)			
SPS	25.82	(15.89)	0.93
SIAS	35.18	(17.44)	0.94
LSAS	58.72	(28.63)	0.96
DASS-21, mean (SD)			
Depression	12.10	(10.41)	0.91
Anxiety	7.11	(7.12)	0.79
Stress	13.09	(9.62)	0.86
Total	32.29	(23.57)	0.93
Social support variables, mean (SD)			
Sense of community belonging	2.68	(0.90)	-
Number of close friends/family members	10.34	(22.61)	-
MOS: Emotional support	3.72	(0.92)	0.92
MOS: Tangible support	3.95	(1.06)	0.93
MOS: Affection	3.97	(1.17)	0.93
MOS: Positive Social Interaction	3.87	(1.08)	0.96
MOS: Total score	3.89	(0.90)	0.95
CERQ, mean (SD)			
Self-blame	11.83	(4.30)	0.90
Acceptance	13.48	(3.18)	0.74
Rumination	12.57	(3.11)	0.71
Positive refocusing	11.00	(3.96)	0.86
Refocus on Planning	12.50	(3.32)	0.77
Positive reappraisal	13.07	(3.80)	0.81
Putting into perspective	13.00	(4.13)	0.85
Catastrophizing	8.98	(3.47)	0.81
Other-blame	8.54	(3.16)	0.85

Note. SPS = Social Phobia Scale; SIAS = Social Interaction Anxiety Scale; LSAS = Liebowitz Social Anxiety Scale; DASS-21 = Depression Anxiety Stress Scales; MOS = Medical Outcomes Study Social Support Survey; CERQ = Cognitive Emotion Regulation Questionnaire

### 2.3 Canadian Community Health Survey

In 1991, the National Task Force on Health Information cited concerns with the Canadian health information system. These concerns stemmed from health information being fragmented, incomplete, not easily shared or analyzed, and the results of research not reaching Canadians. In responding to these issues, the Canadian Institute for Health Information, Statistics Canada, and Health Canada joined forces to strengthen Canada's health information system. As part of this strengthening, the Canadian Community Health Survey (CCHS) was developed. The CCHS is a cross-sectional survey designed to collect information from Canadians on their health status, health determinants, and health care utilization. The information collected in the CCHS aids in the development of public policy, provides data on the economic, social, demographic, occupational, and environmental correlates of health, and increases the understanding of the relationship between health status and health care utilization. These data have been made available to researchers as Public Use Microdata Files, and a PsycINFO search with the keywords "Canadian Community Health Survey" demonstrates that these rich data are being analyzed by numerous researchers on diverse topics, such as obesity (e.g., Dutton & McLaren, 2011), gambling behaviour (e.g., Afifi, Cox, Martens, Sareen, & Enns, 2010), and mental health issues (e.g., Simpson, Meadows, Frances, & Patten, 2012).

In 2002, the CCHS Cycle 1.2: Canadian Community Health Survey – Mental Health and Well-Being was administered. This cycle was designed to provide information about the mental health status, mental health care utilization, and mental health

determinants of the Canadian population (see [http://www23.statcan.gc.ca/imdb-bmdi/pub/instrument/5015\\_Q1\\_V1-eng.pdf](http://www23.statcan.gc.ca/imdb-bmdi/pub/instrument/5015_Q1_V1-eng.pdf) for complete questionnaire content). The specific objectives were to determine prevalence rates of psychiatric disorders to determine the burden of illness in Canada and to examine utilization rates of mental health services with respect to need. Over 30,000 Canadians living in 10 provinces responded to this survey. Beyond the robust nature of these data, one of the advantages is that the CCHS provides information about Canadians with clinical levels of psychiatric disorders who are not necessarily seeking treatment. Social discomfort may particularly inhibit socially anxious individuals from pursuing psychological treatment, so use of the CCHS may provide a more complete profile of individuals with social anxiety than conventional clinical data collection methods.

### Chapter 3: Study 1 - Social anxiety disorder in the Canadian population: Exploring gender differences in sociodemographic profile

Social anxiety disorder is a highly prevalent mental health issue affecting approximately 7.2-12.1% of individuals at least once in their lifetime (Kessler et al., 2005; Ruscio et al., 2008; Shields, 2004; Stein et al., 2001). Several Canadian epidemiological studies present prevalence of social anxiety disorder (e.g., Dick, Sowa, Bland, & Newman, 1994; Offord et al., 1996; Stein, Walker, & Forde, 1994; 1996); however, few studies feature prevalence and demographic variables using Canadian nationally representative data (i.e., Chartrand et al., 2011; Cox et al., 2008; Shields, 2004). Despite existing Canadian as well as international research consistently reporting higher prevalence of social anxiety disorder for females than for males (see Furmark et al., 1999), these studies do not often report gender differences for other social and/or demographic variables.

Accurate estimates of prevalences and sociodemographic features will allow for appropriate planning of mental health services. Furthermore, although there are existing studies presenting sociodemographic characteristics of social anxiety, reports have not always been consistent (Chapman et al., 1995). Identification of these characteristics may allow for categorizing psychosocial mediators of disorders and explaining the relationship between gender and anxiety.

Previous epidemiological research has suggested that socially anxious individuals have a particular sociodemographic profile. Research across both community (Lampe et al., 2003; Schneier et al., 1992) and clinical samples (Wittchen & Beloch, 1996;

Wittchen, Fuetsch, Sonntag, Müller, & Liebowitz, 2000) has established that those with social anxiety are less likely to be married, and less likely to have a boyfriend or girlfriend (Montgomery et al., 1991). Moreover, social anxiety disorder is associated with significant impairment in the areas of education (Schneier et al., 1994; Van Ameringen, Mancini, & Farvolden, 2003) and employment (Schneier et al., 1994).

In addition to a pattern of sociodemographic characteristics, social anxiety disorder is also associated with a particular feature profile, including age of onset and comorbidity. Age of onset for social anxiety disorder is usually the mid-teen years between ages 13-16 (Bourdon et al., 1988; Davidson et al., 1993; Faravelli et al., 2000; B. F. Grant et al., 2005; Kessler et al., 2005; Öst, 1987) and research suggests that there may not be a gender difference with regard to the onset of this disorder (e.g., Bourdon et al., 1988). Individuals with social anxiety disorder frequently meet criteria for other disorders, such as anxiety and mood disorders, and research has consistently demonstrated significant comorbidity between social anxiety disorder and depression (Merikangas & Angst, 1995; Schneier et al., 1992; Stein, Tancer, Gelernter, Vittone, & Uhde, 1990; Wittchen et al., 1999). Existing Canadian studies provide prevalences and demographics for social anxiety disorder subtypes (Chartrand et al., 2011; Shields, 2004) and individuals in the military (Mather, Stein, & Sareen, 2010); however, there does not appear to be any information pertaining to gender differences in associated features.

Gender analyses are pertinent to the study of anxiety disorders as recent research suggests that males and females have distinct patterns of mental illness prevalence. The higher prevalence of internalizing disorders, such as anxiety and depression, in females

and externalizing disorders, such as substance abuse and antisocial disorders, in males is a finding for which there is increasing support (Eaton et al., 2012; Kessler, McGonagle, Swartz, Blazer, & Nelson, 1993; Nolen-Hoeksema, 2001; Seedat et al., 2009; Weissman et al., 1996). A number of mechanisms have been proposed to account for gender differences in mental disorders, including emotional, social, and neurobiological explanations.

The increased likelihood of females to experience anxiety and mood disorders may be due to factors such as emotion regulation strategies, especially the tendency to ruminate, which has been associated with increased depression scores (Nolen-Hoeksema & Aldao, 2011; Nolen-Hoeksema, 2012; Tamres et al., 2002). Variations in social contexts may also differentially contribute to lowered mental health status in males and females. Recent research has established a link between depression and social behaviour that is driven by gender-specific variable interactions. For example, Wareham, Fowler, and Pike (2007) demonstrated that certain types of social support, namely emotional and informational support, were associated with increases in depression severity in males. For females, tangible support was related to an increase in depression severity, a finding also reported by Fowler, Wareham and Barnes (2013). Finally, neurobiological research also provides evidence for different mental disorder prevalences by gender. Wang and colleagues (2007) demonstrated gender-specific neural activation when participants were presented with a stressful mental arithmetic task. As compared to males, females experienced compromised cortisol feedback, which may be related to the development of depression.

### 3.1 Study 1

The aim of the present study was to examine and present gender differences in prevalences and sociodemographic variables for individuals with social anxiety disorder using nationally representative data from the Canadian Community Health Survey 1.2 (CCHS; Gravel & Béland, 2005). In sum, the present research establishes a multivariate profile of the lives and experience of socially anxious Canadian males and females to determine if there are gender-specific differences. As suggested above, there is a relative lack of gender difference literature for social anxiety disorder, as well as a lack of social anxiety disorder prevalence rates and sociodemographic information literature using Canadian nationally representative data. To date, it appears that there are only three such studies which use Canadian population data (Chartrand et al., 2011; Cox et al., 2008; Shields, 2004); however, none of these papers examine gender differences in sociodemographics for individuals with social anxiety disorder. Thus, the present study was conducted to provide a Canadian perspective, to build upon existing research, and to closely examine gender differences in sociodemographic information for individuals with social anxiety disorder.

There are three hypotheses in the present study. First, it is expected that social anxiety disorder lifetime and point prevalence in the present sample will not differ from prevalences found in American and European samples (e.g., Kessler et al., 2005; Ruscio et al., 2008; Shields, 2004; Stein et al., 2001). Moreover, considering the growing literature suggesting that females are more likely to suffer from internalizing disorders (Eaton et al., 2012; Kessler et al., 1993; Nolen-Hoeksema, 2001; Seedat et al., 2009;

Weissman et al., 1996), it is expected that there will be a greater number of females meeting diagnostic criteria in the present sample. There is some evidence which suggests that sociodemographic characteristics differ by gender in the context of anxiety and depression (e.g., Klose & Jacobi, 2004; Leach, Christensen, Mackinnon, Windsor, & Butterworth, 2008), therefore it is expected that socially anxious males and females will differ with respect to sociodemographic variables in the current study. Finally, there is some evidence which suggests that males with social anxiety disorder experience greater life disruption than females (Bruch & Cheek, 1995), therefore it is expected that there will be a gender difference with regard to life satisfaction variables.

### 3.2 Method

#### 3.2.1 Participants

Data from the Public Use Microdata Files of the Canadian Community Health Survey on Mental Health and Well Being cycle 1.2 (CCHS 1.2) were analysed. These data were collected by Statistics Canada between May 2002 and January 2003 (Gravel & Béland, 2005). The CCHS 1.2 was carried out to assess the prevalence and impact of mental disorders in Canada, and provides cross-sectional data from 36,984 Canadians, aged 15-80+ years (age was assessed categorically, ranging from 15-19 years to 80 and up) who were living in private residences in 10 provinces.

3.2.1.1 Data collection. The CCHS questionnaire was administered using computer-assisted interviewing. To select the sample, the CCHS used three sampling frames: 40.5% of the sample of households came from an area frame, 58.5% came from a list frame of telephone numbers and the remaining 1% came from a random digit dialing



sampling frame. Sample units selected from the area frame were interviewed using a computer-assisted personal interviewing method while sample units selected from the telephone list frames and random digit dialing were interviewed using a computer-assisted telephone interviewing method. No data from proxy interviews were used for the current analysis. The response rate for this survey was 77%, and the selection method, exclusions, and a description of the full procedures can be found in Gravel and Béland (2005).

3.2.1.2 Weighting. A survey weight has been assigned to each respondent in the sample in order to estimate probability within this sample. The principle behind probability estimation in a sample such as this is that each respondent “represents” people in the population who are not in the sample. The weighting phase is a step that calculates, for each person, his or her associated sampling weight, which corresponds to the number of people in the population represented by the respondent. This weight is found in the microdata file, and is used to derive meaningful estimates from the survey. In order for estimations from the survey data to represent the population, these weights are incorporated into all calculations.

### 3.2.2 Measures

3.2.2.1 Social anxiety disorder. Five dichotomous “yes/no” questions were used as screening items to identify individuals who may have social anxiety (e.g., “Was there ever a time in your life when you felt very afraid or really, really shy with people; for example, meeting new people, going to parties, going on a date, or using a public bathroom?”). Those individuals who answered questions indicating that they feared or

avoided social situations were then assessed for social anxiety disorder with items based on the World Mental Health – Composite International Diagnostic Interview Instrument (WMH-CIDI; Kessler & Üstün, 2004). The WMH-CIDI is a psychiatric diagnostic interview identifying mental disorders based on the Diagnostic and Statistical Manual of Mental Disorders, 4<sup>th</sup> Edition (DSM-IV; American Psychiatric Association, 2000). The WMH-CIDI has been compared with the Structured Clinical Interview for DSM-IV (SCID; First, Spitzer, Gibbon, & Williams, 2002) and found to have similar diagnostic consistency (Kessler et al., 2004). The social anxiety disorder module involved questions requiring respondents to reply “yes/no” if there was ever a time in their lives when they felt “very shy, afraid, or uncomfortable” with 13 social situations (e.g., meeting new people, talking to people in authority, or speaking up in a meeting or class), in addition to asking about physical symptoms experienced when anxious. The computer-based scoring system derived several variables of interest, namely lifetime prevalence, 12-month prevalence, and age of onset.

3.2.2.2 Depression. Interview questions for the depression module were also based on the World Mental Health – Composite International Diagnostic Interview Instrument (WMH-CIDI; Kessler & Üstün, 2004). Participants were selected into the depression module based on their answers to the screener items (e.g., “Have you ever in your life had a period lasting several days or longer when most of the day you felt sad, empty, or depressed?”). Within the depression module, participants were asked about their depressive symptoms including episodes of feeling “sad, empty or depressed”, loss of interest, and feelings of discouragement; duration of symptoms; and frequency of

symptoms. The computer-based scoring system derived lifetime prevalence and 12-month prevalence.

3.2.2.3 Sociodemographic variables. Sociodemographic variables were categorical in nature, including gender (male, female), age (0-14, 15-19, 20-24, 25-29, 30-34, 35-39, 40-44, 45-49, 50-54, 55-59, 60-64, 65-69, 70-74, 75-79, 80 years or more), marital status (married, common-law, widowed/separated/divorced, single), living arrangement (Unattached individual living alone, unattached individual living with others, living with spouse/partner, parent living with spouse/partner and children, single parent living with children, child living with single parent with/without siblings, other), education (less than secondary, secondary graduate, some post-secondary, trades certificate/diploma, college certificate/diploma, university certificate below Bachelor's, Bachelor's degree, university degree above Bachelor's), employment status (worked at job or business in past 12 months or not) and personal income (no income, less than \$15,000, \$15,000 – \$29,000, \$30,000 – \$49,000, \$50,000 – \$79,000, more than \$80,000).

3.2.2.4 Well-Being. Self-rated mental health, general life satisfaction, and self-perceived stress were included in the present analyses to examine subjective mental well-being. Mental health was assessed by asking respondents to rate the question “In general, would you say your mental health is...” from 1 – Excellent to 5 – Poor. Life satisfaction was assessed by asking respondents to rate the question “How satisfied are you with your life in general” from 1 – Very Satisfied to 5 – Very dissatisfied. Perceived life stress was assessed by asking respondents to rate the question “Thinking about the amount of stress

in your life, would you say that most days are 1 – Not at all stressful to 5 – Extremely stressful.

### 3.2.3 Analytic Strategy.

Social anxiety (i.e., lifetime prevalence, 12-month prevalence, and age of onset), depression (i.e., lifetime and 12-month prevalence), demographic variables (i.e., gender, age, marital status, living arrangement, education, employment status, and personal income) and subjective mental well-being (i.e., self-rated mental health, life satisfaction, and self-perceived stress) were examined. Comparisons were made between (1) individuals in the total sample to a subset of individuals who met criteria for lifetime social anxiety disorder, and (2) socially anxious males to socially anxious females.

When examining gender differences in categorical variables, Chi-squared tests of independence were performed. To identify the contribution of the different cells to the significance of the Chi-squared test, adjusted standardized residuals were calculated. Adjusted standardized residuals follow the standard normal distribution, and for residuals that are greater than an absolute value of 1.96,  $p < 0.05$ . The overall sample of respondents is being treated as a population reference, therefore when examining differences between the total sample and the subset of individuals with social anxiety disorder in categorical variables, Chi-squared Goodness of Fit tests were used. An alpha level of .05 was used to determine statistical significance.

Effect sizes were calculated using Cohen's  $d$  for mean comparisons, and phi ( $\phi$ ) when Chi-squared tests were used. The appropriate statistical weights provided by

Statistics Canada were used to ensure the representativeness of these data to the Canadian population.

### 3.3 Results

3.3.1 Gender differences in prevalence. This sample consisted of 36,984 respondents, of whom 54.6% were female ( $n = 20,211$ ). Of the total sample of 36,984 respondents, 7,749 individuals were identified as potentially socially anxious using the initial screening items, and were selected to complete the social anxiety disorder module of the CCHS. Of the 7,749 male and female respondents who were screened in and completed the social anxiety disorder module, 3,061 (8.1% of total Canadian sample) were identified as meeting criteria for lifetime social anxiety disorder (see Table 3-1). Of the 3,061 socially anxious respondents, 39.6% were males ( $n = 1,212$ ) and 60.4% were females ( $n = 1,849$ ). A Chi-squared test of independence suggested that significantly more females than males suffered from social anxiety disorder,  $\chi^2(1, N = 36,984) = 44.63$ ,  $p < .001$ . Of these 3,061 respondents who met criteria for lifetime social anxiety disorder, 1,189 met 12-month criteria (38.8% of lifetime socially anxious; 3.2% of total Canadian sample; see Table 3-1), indicating that they had experienced a social anxiety disorder episode within the last 12 months. A Chi-squared test of independence suggested that the percentage of lifetime socially anxious respondents who met 12-month criteria did not differ by gender,  $\chi^2(1, N = 2,912) = 3.31$ ,  $p = .07$ .

Over one-third of socially anxious respondents, or 39.9%, met diagnostic criteria for lifetime major depression and 21.1% met 12-month criteria for major depression,

Table 3-1

Prevalence Rates for Social Anxiety Disorder and Major Depressive Disorder

	Frequency, Percent					
	Socially Anxious Males n = 1,212		Socially Anxious Females n = 1,849		Total Socially Anxious n = 3,061	
12-month Social Anxiety	450	37.1%	739	40.0%	1,189	38.8%
Comorbid Depression						
Lifetime Major Depression *	431	35.6%	791	42.8%	1,222	39.9%
12-month Major Depression *	229	18.9%	416	22.5%	645	21.1%

Note. Variables with \* are significantly different by gender,  $p < .05$

indicating significant comorbidity. A Chi-squared test of independence suggested that socially anxious females were significantly more likely to have a lifetime diagnosis of major depressive disorder than males,  $\chi^2(1, N = 3,047) = 16.81, p < .001$ . A second Chi-squared test of independence suggested that the socially anxious females were also more likely to meet 12-month criteria for major depressive disorder than males,  $\chi^2(1, N = 3,046) = 5.99, p < .05$ .

For the total CCHS sample, the median age of all respondents was 45 to 49 years. Approximately 50% of male and female socially anxious respondents were 39 years of age or younger (see Table 3-2). For socially anxious males, the median age was 40 to 44 years, and for socially anxious females, the median age was 35 to 39 years. The majority of socially anxious males and females reported an early age of onset, with 63% reporting onset between 1-14 years. A total of 90.8% of all males and females who met criteria for lifetime social anxiety disorder reported their age of onset as 24 years of age or younger.

For age of onset, a Chi-squared test of independence was significant,  $\chi^2(12, N = 2,846) = 29.70, p < .01$ , and suggested that more socially anxious females than males reported an age of onset before the age of 14, (adjusted standardized residual 2.6).

Socially anxious males were more likely than females to report an age of onset between ages 25-29, 50-54, and 60-64 (adjusted standardized residuals 2.2, 2.3, and 2.1, respectively). The effect size for this test was .10, which is considered small.

3.3.2 Sociodemographics. Frequency analyses for demographics for the 3,061 individuals who met criteria for lifetime social anxiety disorder are presented in Table 3-3 and demographics for the total sample and the social anxiety subset are presented in

Table 3-2

## Age and Age of Onset for Individuals with Lifetime Social Anxiety Disorder

		Frequency, Percent					
		Males n = 1,212		Females n = 1,849		Total n = 3,061	
Age							
	15 to 19 years	87	7.2%	168	9.1%	255	8.3%
	20 to 24 years	118	9.7%	184	10.0%	302	9.9%
	25 to 29 years	101	8.3%	168	9.1%	269	8.8%
	30 to 34 years	128	10.6%	208	11.2%	336	11.0%
	35 to 39 years	153	12.6%	203	11.0%	356	11.6%
	40 to 44 years	155	12.8%	202	10.9%	357	11.7%
	45 to 49 years	135	11.1%	165	8.9%	300	9.8%
	50 to 54 years	115	9.5%	177	9.6%	292	9.5%
	55 to 59 years	104	8.6%	154	8.3%	258	8.4%
	60 to 64 years	58	4.8%	82	4.4%	140	4.6%
	65 to 69 years	30	2.5%	52	2.8%	82	2.7%
	70 to 74 years	17	1.4%	41	2.2%	58	1.9%
	75 to 79 years	6	0.5%	28	1.5%	34	1.1%
	80 years or more	5	0.4%	17	0.9%	22	0.7%
Age of Social Anxiety Disorder Onset							
	0 to 14 years	741	61.1%	1187	64.2%	1928	63.0%
	15 to 19 years	225	18.6%	290	15.7%	515	16.8%
	20 to 24 years	59	4.9%	82	4.4%	141	4.6%
	25 to 29 years	35	2.9%	31	1.7%	66	2.2%
	30 to 34 years	21	1.7%	42	2.3%	63	2.1%
	35 to 39 years	15	1.2%	30	1.6%	45	1.5%
	40 to 44 years	14	1.2%	26	1.4%	40	1.3%
	45 to 49 years	9	0.7%	7	0.4%	16	0.5%
	50 to 54 years	11	0.9%	5	0.3%	16	0.5%
	55 to 59 years	5	0.4%	2	0.1%	7	0.2%
	60 to 64 years	3	0.2%	0	0%	3	0.1%
	65 to 69 years	2	0.2%	1	0.1%	3	0.1%
	70 to 74 years	0	0%	3	0.2%	3	0.1%



Table 3-3

## Sociodemographic Frequencies for Individuals with Lifetime Social Anxiety Disorder

Sociodemographic Variable	Frequency, Percent					
	Males n = 1,212		Females n = 1,849		Total n = 3,061	
Marital Status						
Married	422	34.8%	639	34.6%	1,061	34.7%
Common-Law	121	10.0%	178	9.6%	299	9.8%
Widowed, Separated, Divorced	187	15.4%	448	24.2%	635	20.7%
Single	481	39.7%	581	31.4%	1,062	34.7%
Living Arrangement						
Unattached Individual Living Alone	380	31.4%	476	25.7%	856	28.0%
Unattached Individual Living with Others	63	5.2%	81	4.4%	144	4.7%
Living with Spouse or Partner	261	21.5%	396	21.4%	657	21.5%
Parent Living with Spouse/Partner, and Children	239	19.7%	359	19.4%	598	19.5%
Single Parent Living with Children	27	2.2%	227	12.3%	254	8.3%
Child Living with Single Parent with/without Siblings	57	4.7%	62	3.4%	119	3.9%
Child Living with Two Parents with/without Siblings	125	10.3%	141	7.6%	266	8.7%
Other	58	4.8%	82	4.4%	140	4.6%
Highest Level of Education						
Less than Grade 8	64	5.3%	98	5.3%	162	5.3%
Grade 9-10	139	11.5%	213	11.5%	352	11.5%
Grade 11-13	88	7.3%	153	8.3%	241	7.9%
Secondary School Graduation	206	17.0%	358	19.4%	564	18.4%
Some Post-Secondary	123	10.1%	202	10.9%	325	10.6%
Trades Certificate or diploma	184	15.2%	183	9.9%	367	12.0%
College Certificate or diploma	201	16.6%	376	20.3%	577	18.9%
University Certificate below Bachelor's	29	2.4%	58	3.1%	87	2.8%
Bachelor's Degree	124	10.2%	149	8.1%	273	9.0%
University degree above Bachelor's	48	4.0%	52	2.8%	100	3.3%

Sociodemographic Variable	Frequency, Percent					
	Males n = 1,212		Females n = 1,849		Total n = 3,061	
Worked at Job or Business in Past 12 months	960	79.2%	1266	68.5%	2,226	72.7%
Personal Income						
No Income	34	2.8%	121	6.5%	155	5.1%
Less than \$15,000	274	22.6%	730	39.5%	1004	32.8%
\$15,000-\$29,999	244	20.1%	451	24.4%	695	22.7%
\$30,000-\$49,999	318	26.2%	322	17.4%	640	20.9%
\$50,000-\$79,999	212	17.5%	90	4.9%	302	9.9%
\$80,000 or more	64	5.3%	17	0.9%	81	2.6%

Table 3-4. A Chi-squared test of independence was significant,  $\chi^2(3, N = 3,057) = 41.85$ ,  $p < .001$ , and suggested that more socially anxious females than males were widowed, separated, or divorced and that more socially anxious males than females were single (adjusted standardized residuals 5.9 and 4.7, respectively). The effect size for this test was .12, which is considered small. A Chi-squared Goodness of Fit test was significant  $\chi^2(3, N = 3,057) = 158.38$ ,  $p < .001$ , suggesting that as compared to the total sample, the subset of individuals with social anxiety disorder are less likely to be married or widowed, separated, or divorced, and more likely to be in a common law relationship or single. The effect size for this test was .23, or small.

For living arrangement, a Chi-squared test of independence was significant,  $\chi^2(7, N = 3,034) = 107.76$ ,  $p < .001$ , and suggested that more socially anxious males than females were unattached and lived alone or were living with two parents, and that more females than males were single parents living with children (adjusted standardized residuals 3.2, 2.5, and 9.9, respectively). The effect size for this test was .19, which is considered small. A Chi-squared Goodness of Fit test was significant,  $\chi^2(7, N = 3,034) = 102.32$ ,  $p < .001$ , and suggested that socially anxious individuals were more likely than individuals in the total sample to be unattached individuals living alone, unattached individuals living with others, a single parent living with one or more children, or a child living with either one or both parents. Socially anxious respondents were also less likely than those in the total sample to be living with a spouse or a parent living with a spouse and children. The effect size for this test was .18, or small.

Table 3-4

Sociodemographic Frequencies for the Total Sample and Social Anxiety Disorder Subset

Sociodemographic Variable	Frequency, Percent			
	Total Sample n = 36,984		Socially Anxious n = 3,061	
Marital Status				
Married	16,332	44.2%	1,061	34.7%
Common-Law	2,852	7.7%	299	9.8%
Widowed, Separated, Divorced	7,959	21.5%	635	20.7%
Single	9,798	26.5%	1,062	34.7%
Living Arrangement				
Unattached Individual Living Alone	9,941	26.9%	856	28.0%
Unattached Individual Living with Others	1,523	4.1%	144	4.7%
Living with Spouse or Partner	9,857	26.7%	657	21.5%
Parent Living with Spouse/Partner, and Children	7,792	21.1%	598	19.5%
Single Parent Living with Children	1,963	5.3%	254	8.3%
Child Living with Single Parent with/without Siblings	1,096	3.0%	119	3.9%
Child Living with Two Parents with/without Siblings	2,886	7.8%	266	8.7%
Other	1,667	4.5%	140	4.6%
Highest Level of Education				
Less than Grade 8	3,704	10.0%	162	5.3%
Grade 9-10	4,320	11.7%	352	11.5%
Grade 11-13	2,568	6.9%	241	7.9%
Secondary School Graduation	6,497	17.6%	564	18.4%
Some Post-Secondary	3,050	8.2%	325	10.6%
Trades Certificate or diploma	4,281	11.6%	367	12.0%
College Certificate or diploma	5,851	15.8%	577	18.9%
University Certificate below Bachelor's	1,087	2.9%	87	2.8%
Bachelor's Degree	3,658	9.9%	273	8.9%
University degree above Bachelor's	1,737	4.7%	100	3.3%
Worked at Job or Business in Past 12 months	24,221	65.5%	2,226	72.7%
Personal Income				
No Income	1591	4.2%	155	5.1%
Less than \$15,000	10167	27.0%	1004	32.8%
\$15,000-\$29,999	8812	24.0%	695	22.7%
\$30,000-\$49,999	7643	20.7%	640	20.9%
\$50,000-\$79,999	4283	11.8%	302	9.9%
\$80,000 or more	1464	4.1%	81	2.6%

For education, a Chi-squared test of independence was significant,  $\chi^2(9, N = 3,048) = 34.37, p < .001$ , and suggested that more socially anxious males than females obtained a trades certificate or a bachelor's degree, and that more females than males obtained a college certificate (adjusted standardized residuals 4.4, 2.1, and 2.6, respectively). The effect size for this test was .11, which is considered small. A Chi-squared Goodness of Fit was significant,  $\chi^2(9, N = 3,048) = 129.48, p < .001$ , suggesting that socially anxious individuals were less likely than individuals in the total sample to have completed grade 10 or less or any university education. Socially anxious respondents were more likely than those in the total sample to have completed grades 11-13, a high school diploma, some post-secondary education, a trades certificate/diploma, or a college diploma. The effect size was .21, or small.

A Chi-squared test of independence suggested that socially anxious males were significantly more likely to have been working over the past year than females,  $\chi^2(1, N = 3,005) = 35.74, p < .001$ . The effect size was .11, which is considered small. A Chi-squared Goodness of Fit test suggested that there was no significant difference between socially anxious individuals' and the total sample with respect to employment within the last year,  $\chi^2(1, N = 3,005) = 3.21, p = .07$ .

For personal income, a Chi-squared test of independence was significant,  $\chi^2(5, N = 2,877) = 287.09, p < .001$ , and suggested that there were gender differences for each category. More socially anxious males than females reported a personal income in the three highest categories, from \$30,000 and up (adjusted standardized residuals 5.8, 11.4, and 7.3, respectively). More socially anxious females than males reported a personal

income in the three lowest categories, ranging from no income to \$29,999 (adjusted standardized residuals 4.7, 10.1, and 2.9, respectively). The effect size for this test was .32, which is considered medium. A Chi-Squared Goodness of Fit test was significant,  $\chi^2(5, N = 2,877) = 60.114, p < .001$ , and suggested that as compared to the total sample, individuals with social anxiety disorder were more likely to report personal income in the less than \$15,000 category and less likely to report their income as being in the higher income categories (\$15,000 and greater). The effect size was .14, or small.

3.3.3 Life satisfaction. An independent t-test showed that socially anxious females rate their mental health as poorer than socially anxious males,  $t(3,056) = -2.34, p < .05$  (See Table 3-5). This effect size was small, Cohen's  $d = .08$ . A one-sample t-test suggested that individuals with social anxiety disorder ( $M = 2.16, SD = 1.07$ ) rated their mental health significantly poorer than individuals in the total sample ( $M = 2.82, SD = .94$ ),  $t(3,056) = -34.16, p < .001$ . This effect size was medium,  $d = .66$ .

An independent t-test suggested that there was no significant difference for gender for life satisfaction among individuals with social anxiety disorder. A one-sample t-test suggested that socially anxious individuals report significantly lower levels of life satisfaction ( $M = 3.63, SD = 1.02$ ) than individuals in the total sample ( $M = 4.10, SD = .82$ ),  $t(3,059) = -25.64, p < .001$ . This was also a medium effect size,  $d = .51$ .

Finally, an independent t-test suggested that socially anxious females reported higher self-perceived stress than socially anxious males  $t(3,059) = 3.45, p < .001$ . This effect size was small,  $d = .13$ . A one-sample t-test suggested that socially anxious individuals ( $M = 3.21, SD = .96$ ) perceive their lives to be more stressful than the total

Table 3-5

## Mean Comparisons for Life Satisfaction Variables

	M (SD)				t-test, p
	Socially Anxious Males n = 1,212		Socially Anxious Females n = 1,849		
Self-perceived mental health	2.79	(1.04)	2.88	(1.08)	t (3,056) = - 2.34, p < .05
Satisfaction with life in general	2.39	(1.03)	2.36	(1.01)	t (3058) = 0.68, p = .49
Self-perceived stress	3.14	(0.97)	3.26	(0.94)	t (3,059) = 3.45, p < .001
	Total Sample n = 36,984		Socially Anxious n = 3,061		
Self-perceived mental health	2.18	(0.94)	3.21	(0.96)	t (3,056) = - 34.16, p < .001
Satisfaction with life in general	1.90	(0.83)	2.37	(1.02)	t (3,059) = - 25.64, p < .001
Self-perceived stress	2.73	(1.03)	2.84	(1.07)	t (3,059) = - 90.92, p < .001

Note. Higher scores on these three variables suggest poorer well-being.

sample ( $M = 2.73$ ,  $SD = 1.03$ ),  $t(3,059) = -90.92$ ,  $p < .001$ . This effect size was small,  $d = .48$ .

### 3.1 Discussion

The objective of this study was to replicate and extend the existing literature by presenting prevalence and sociodemographic information about Canadians with social anxiety disorder, as well as presenting new information about gender differences for these individuals. There were three hypotheses in the current study. First, it was expected that social anxiety disorder lifetime and point prevalence in the present sample will not differ from prevalences found in American and European samples, and that there would be a greater number of socially anxious females in the present sample. Second, it was expected that there would be gender differences in sociodemographic profiles for socially anxious individuals. Finally, it was expected that males and females would differ with regard to life satisfaction.

**Prevalences.** As predicted, the prevalences found in the current study were similar to published rates. The prevalence rate for social anxiety disorder in this sample was 8.1%, and is within the range previously reported in American and European data (Kessler et al., 2005; Ruscio et al., 2008; Shields, 2004; Stein et al., 2001). Prevalence by gender was consistent with previous literature (e.g., Shields, 2004); females were more likely to have this disorder than males. Of the total Canadian sample, 3.2% of respondents met current or 12-month criteria for social anxiety, which is lower than previously reported rates (Kessler et al., 2005).



Nearly 40% of socially anxious respondents also met diagnostic criteria for comorbid lifetime major depression, much higher than the total sample lifetime prevalence of 12.7% in the present sample. Socially anxious females were more likely to meet criteria for either comorbid lifetime or 12-month major depressive disorder than socially anxious males, which is consistent with findings in existing literature (e.g., Kessler et al., 1993). Nolen-Hoeksema (2001) has attempted to explain this gender disparity, and states that even in similar stressful situations, females are more reactive to the stressors than males. This increased reactivity is due to gender differences in biological responses to stress, coping styles, and self-concepts, which is the most relevant to the current research. Nolen-Hoeksema describes how females are more likely to have a self-concept of interpersonal orientation, or a tendency to be concerned with the status of her relationships. This preoccupation may lead to distress and depression if there is conflict or if she ignores her needs in order to attend to the needs of her friends and family. Considering that individuals with social anxiety have impaired relationships, females who have an interpersonal orientation are especially likely to develop symptoms of depression. Unfortunately, this appears to be a cyclical pattern making socially anxious females more likely to suffer with both anxiety and depression.

Sociodemographic variables. Also as expected, socially anxious males and females differ with regard to sociodemographic variables. These gender comparisons result in a bleak representation of Canadians with social anxiety disorder. Significantly more socially anxious males than females reported being single, and unattached and living alone. Socially anxious females in this study were more likely than socially anxious

males to be “widowed, separated, or divorced”, and more likely to report being a single parent living with one or more children. Significantly fewer females than males were employed during the last 12 months, and females reported lower personal income than males.

The lack of social support in the form of marital status and living arrangement in the present sample is not surprising given the nature of social anxiety. Positive social support is tied to well-being and life satisfaction; however, socially anxious individuals may lack or may not be able to fully benefit from their personal relationships. Despite conventional wisdom which suggests that any social support is associated with increased well-being, recent research has suggested that different types of social support may lead to increased psychological distress, and that there are differences by gender (Fowler et al., 2013; Wareham et al., 2007). For males, emotional and informational support are associated with increases in depression severity, and for females, tangible support is related to an increase in depression severity. These gender variations are indicative of how males and females operate differently in their social environments, namely that males and females may require different behaviours from the people in their social networks in order to fully benefit from the social support. Further research examining whether different types of social support are predictive of social anxiety differentially for males and females may help to shed light on these associations.

With respect to employment status, socially anxious females were less likely to be employed in the last year, and reported lower personal income than socially anxious males, a pattern of results also seen in normative samples. Unlike normative samples, the

stress associated with lower employment and income statuses may be compounded by mental health issues related to social anxiety disorder. Future research should include a multifaceted examination of employment for socially anxious people. The dichotomous item in the present research asked respondents to indicate their employment status. In any subsequent research, it may be more revealing to ask respondents more qualitative questions, such as whether they were satisfied with their jobs or the number of sick days they have taken in the last year. Any indication that socially anxious individuals are underemployed, have low household incomes, or take leaves of absences due to their symptoms would support the assumption that people with psychiatric difficulties face a heavier economic burden than non-clinical counterparts (e.g., Patel, Knapp, Henderson, & Baldwin, 2002). A high economic burden in addition to the high costs of psychiatric services likely leads to considerable distress in the lives of people with social anxiety disorder.

Mental health status. Finally, as predicted, when asked to rate their mental health status, females with social anxiety reported having poorer mental health and higher stress levels than males with social anxiety. Bruch and Cheek (1995) state that males may experience greater life disruption as a result of socially anxiety or shyness; however in the present study, females endorsed lower well-being, and socially anxious males and females did not differ with regard to their self-rated life satisfaction. While socially anxious males and females may not differ with regard to their life satisfaction, perhaps the difference in mental health status is because of a reporting bias: Females may be more willing to disclose poor mental health.

**Limitations.** The present research must be interpreted in light of several limitations. First, diagnoses of social anxiety disorder and major depressive disorder in the CCHS were not assessed by practicing clinicians; rather it was conducted by trained interviewers. This makes it difficult to ensure the accuracy of the diagnoses, and thus the accuracy of the conclusions that have been drawn. Second, this survey is cross-sectional so theorizing about causal effects is impossible. A longitudinal study would be a preferred method of collecting these data; however, costs would be prohibitive for a sample of this size. Future research could examine whether sociodemographic variables are mediators of anxiety, possibly leading to implications for prevention. Third, there were some limitations with regard to items, for example: people who were widowed, separated, or divorced were put into one category. It is likely more meaningful to separate the categories. Relatedly, some of the variables included in these analyses consist of only one or two items, such as number of close friends/family, which may impact construct validity. Additionally, there were no items in these data which assessed sexual orientation. Previous social anxiety literature seems to ignore this variable; however, it may provide insight when examining the relationships of socially anxious people. A final limitation is that these data were collected in 2002, so it may differ from data collected more recently. Statistics Canada has not yet made available any further mental health data since 2002.

**Conclusions.** Despite the relatively modest analyses in this current research, it provides a succinct profile of Canadians with social anxiety disorder. Social anxiety is highly prevalent, especially among females, and is associated with significant

impairments in domains such as education, employment, income, and self-rated mental health. Females with social anxiety disorder may experience greater life disruption than males, since they report higher stress levels which are likely due to the increased likelihood of comorbid depression, single parenthood, lower incomes, and poorer mental health. The knowledge that individuals with social anxiety disorder are also marginalized in these areas may be beneficial for treatment planning and public health efforts.

#### Chapter 4: Study 2 - Social anxiety disorder in the Canadian population: Exploring gender differences in social support

Social anxiety disorder, or social phobia, consists of negative-self judgment and fear of negative evaluation from others in social interactions or performance situations, and is characterized by unassertive and avoidant behaviours designed to protect the self from negative evaluation (e.g., Alden & Wallace, 1995; Alden & Bieling, 1998; Hope, Sigler, Penn, & Meier, 1998; Kocovski & Endler, 2000; Meleshko & Alden, 1993). The fears associated with social anxiety disorder often result in individuals enduring social situations with significant distress, or avoiding these situations entirely. The fear, avoidance, and anxious anticipation of social events interfere with an individual's social relationships, and therefore result in poor interpersonal functioning (Davila & Beck, 2002; Solyom, Ledwidge, & Solyom, 1986).

In addition to experiencing fear and avoidance, individuals with social anxiety disorder behave in ways that may isolate them from others. During social interactions, they avoid making eye contact (Horley et al., 2003) and looking at emotional faces in general (Chen et al., 2002). They are perceived as less friendly, less likable, less appropriate, and more likely to produce discomfort in confederates than non-anxious individuals (Alden & Bieling, 1998; Meleshko & Alden, 1993; Cheek & Buss, 1981; Jones, Briggs, & Smith, 1986; Leary & Kowalski, 1995). In interactions with others, socially anxious individuals display a self-protective style of communication, including low self-disclosure and emotional intimacy (Alden & Bieling, 1998; Cuming & Rapee,

2010; DePaulo et al., 1990; Meleshko & Alden, 1993; Reno & Kenny, 1992). This behavioural profile can lead to significantly disrupted social interactions.

Social support has consistently been associated with better health and wellbeing in decades of research (see Taylor, 2011 for a review). Cohen and Wills (1985) provided a foundation for social support research and theory by distinguishing between social support's main effects and stress buffering. Main effects of social support occur when individuals who have greater social support resources have better overall mental health than those with low social support, regardless of stress levels. More pertinent to the current research is stress buffering, which occurs when social support is a protective factor (i.e., a "buffer") against the negative effects of stress. Lazarus and Folkman's (1984) general stress and coping theory serves to explain the buffering model: social support promotes adaptive appraisal and coping during stressful life events.

Individuals with social anxiety disorder have difficulty initiating and maintaining social connections and experience considerable distress, so it may not always be apparent whether their social networks are serving to buffer against stressful life events. However, it can be hypothesized that an individual's perceived social support, however small, may predict his/her distress levels. Specifically, individuals with social anxiety disorder with adequate social support may experience less distress than those who do not have sufficient social resources. Nevertheless, it may be a challenge to identify individuals with social anxiety disorder who perceive that they have adequate social support.

Research across both community (Lampe et al., 2003; Schneier et al., 1992) and clinical samples (Wittchen & Beloch, 1996; Wittchen, Fuetsch, Sonntag, Müller, &

Liebowitz, 2000) has demonstrated that social anxiety is associated with fewer relationships, such as being single and having smaller numbers of close friends. Moreover, individuals with social anxiety perceive their social support networks to be smaller and/or less satisfying than individuals without social anxiety (e.g., Cuming & Rapee, 2010; Montgomery, Haemmerlie, & Edwards, 1991; Torgrud et al., 2004; Wenzel, 2002; Wittchen & Beloch, 1996). Despite correlational support for socially anxious individuals having lower quantities of friends and acquaintances in their social networks, the research does not address whether a lack of social support contributes to feelings of distress and anxiety for individuals who are presently suffering from social anxiety disorder.

Furthermore, socially anxious individuals also have issues with social relationship quality. Socially anxious individuals are less likely to report the experience of emotional closeness and security with romantic partners and non-family members of their social network (Montgomery et al., 1991; Wenzel, 2002). Montgomery and colleagues have found that people with high social anxiety report receiving fewer “social provisions”, or assurances that they can count on others for assistance in any circumstance. Furthermore, social anxiety is associated with lower ratings of closeness, supportiveness, and ability to engage in appropriate conflict resolution with others, as well as lower overall romantic relationship quality (e.g., Cuming & Rapee, 2010; Davila & Beck, 2002).

Positive social support is associated with well-being and life satisfaction; however, it is unlikely that socially anxious individuals are fully benefiting from their personal relationships. Moreover, social support may contribute to lowered mental health



status among vulnerable individuals. Fowler and colleagues (Fowler et al., 2013; Wareham et al., 2007) found that social support differentially predicted depression duration and severity in males and females. They demonstrated that certain types of social support, namely emotional and informational support, were associated with increases in depression severity in males. For females, tangible support was related to an increase in depression severity. Given conventional wisdom, in addition to the well-documented importance of social support in psychological health (e.g., B. R. Sarason et al., 1991), these findings may be initially puzzling. While social support is often touted as a beneficial variable that has positive effects on mental health, it may be detrimental to psychological well-being in some instances when the individual is already vulnerable. For example, Riley and Eckenrode (1986) studied nonclinical females and found that social support was related to greater negative affect during stressful life events for individuals with fewer material and psychological resources. Unfortunately, males were not included in Riley and Eckenrode's analysis, so a gender comparison was not possible.

Level of social impairment in social anxiety appears to differ by gender (Ham, Hayes, & Hope, 2005; La Greca & Lopez, 1998). La Greca and Lopez found that adolescent females with higher social anxiety scores reported fewer friendships, less intimacy, companionship, and support in their friendships. For adolescent males, social anxiety was not related to friendship quality. These authors commented that if socially anxious adolescents are feeling socially unaccepted, they may be missing out on formative social experiences, which may contribute to impaired social functioning as they reach adulthood.

Young females' experience of greater social impairment was also found in Ham and colleagues' (2005) study of gender differences in the experience of social anxiety in adults. Males and females did not differ in perceived social support quantity or satisfaction, but there were within-group age differences. Younger socially anxious females reported smaller social networks and lower satisfaction than older socially anxious females. Conversely, for males, social support network size was negatively correlated with age, and there was no relationship between age and satisfaction. The authors speculated that marriage may be a protective factor for socially anxious females; specifically that increased social support with age may be a result of marriage, and subsequently gaining a greater social network because of her spouse's friends and family.

Nolen-Hoeksema's (2001) integrative model may clarify the increased social impairment for socially anxious females as compared to socially anxious males. Nolen-Hoeksema states that even in similar stressful situations, females are more reactive to the stressors than males, and this reactivity may be partly due to females having a tendency to be concerned with the status of their relationships. This preoccupation with relationships may lead to distress if she focuses on the needs of her friends and family instead of her own needs, or if there is conflict within the relationships. Considering that social anxiety is associated with disrupted relationships, females who have this tendency are especially likely to become distressed and/or depressed. Unfortunately, this appears to be a cyclical pattern causing socially anxious females to be more predisposed to anxiety and depression.

#### 4.1 Study 2

There are four studies of social anxiety disorder using Canadian population data: Shields (2004), Cox et al. (2008), Chartrand et al. (2011), and MacKenzie and Fowler (2013); however, none of these articles examine gender differences in social support variables for individuals with social anxiety disorder. As such, there are two objectives of the current study.

The first objective is to determine if social anxiety disorder is uniquely associated with social variables, and if so, to examine gender differences. Existing literature consistently demonstrates that individuals with social anxiety disorder are less likely to be married or have significant others (e.g., Montgomery et al., 1991; Schneier et al., 1992; Wittchen & Beloch, 1996; Wittchen et al., 2000) than non-socially anxious individuals. Based on previous findings examining sociodemographic variables using the Canadian Community Health Survey data (i.e., MacKenzie & Fowler, 2013), it is hypothesized that there will be gender differences in social variables such that females experience greater overall impairment.

Second, research has indicated that certain types of social support are detrimental to well-being in vulnerable individuals differentially by gender (Fowler et al., 2013; Wareham et al., 2007); therefore, it is hypothesized that social support variables will differentially predict distress in social anxiety disorder by gender. It is expected that after controlling for depression, which is highly comorbid with social anxiety disorder, there will be a similar pattern of results to the two studies conducted by Fowler and colleagues (2013; 2007).

## 4.2 Method

### 4.2.1 Participants

Data from the public use files of the Canadian Community Health Survey on Mental Health and Well Being cycle 1.2 (CCHS 1.2) were analysed. A full description of CCHS cycle 1.2 is available elsewhere (Gravel & Béland, 2005) but will be described briefly here. These data were collected by Statistics Canada between May 2002 and January 2003 and was carried out to assess the prevalence and impact of mental disorders in Canada. These data provide cross-sectional data from 36,984 adult Canadians, aged 15-80+ years who were living in private residences in 10 provinces.

3.2.1.1 Data collection. The CCHS questionnaire was administered using computer-assisted interviewing. To select the sample, the CCHS used three sampling frames: 58.5% of the sample of households came from a list frame of telephone numbers, 40.5% came from an area frame, and the remaining 1% came from a random digit dialling sampling frame. Sample units selected from the area frame were interviewed using a computer-assisted personal interviewing method while sample units selected from the telephone list frames and random digit dialling were interviewed using a computer-assisted telephone interviewing method.

Proxy interviews were conducted if the selected respondent was not available, or unable to complete the interview. While this method was practical for the majority of the survey, sensitive and/or private questions were sometimes beyond the knowledge of the proxy respondent, and were often left unanswered. As such, efforts were made to reduce the number of proxy interviews during data collection. Due to the nature of the items

selected for use in the present research, proxy respondents often were unable to answer, therefore no data from proxy interviews were used for the current analysis. The response rate for this survey was 77%, and the selection method, exclusions, and a description of the full procedures can be found in Gravel and Béland (2005).

3.2.1.1 Weighting. In order for estimations from the survey data to represent the population, survey weights have been incorporated into all calculations. A survey weight has been assigned to each respondent in order to estimate probability within this sample. The principle behind probability estimation in a sample such as this is that each respondent “represents” people in the population who are not in the sample. The weighting phase is a step that calculates each person’s associated sampling weight, which corresponds to the number of people in the population represented by the respondent. This weight is found in the microdata file, and is used to derive meaningful estimates from the survey.

#### 4.2.2 Measures

4.2.2.1 Social anxiety disorder. Individuals were given five dichotomous screening yes/no questions to identify possible social anxiety disorder (e.g., “Was there ever a time in your life when you felt very afraid or really, really shy with people; for example, meeting new people, going to parties, going on a date, or using a public bathroom?”). Individuals who indicated fear and/or avoidance of social situations were then assessed for social anxiety disorder with items based on the World Mental Health – Composite International Diagnostic Interview Instrument (WMH-CIDI; Kessler & Üstün, 2004). The WMH-CIDI is a psychiatric diagnostic interview identifying mental disorders

based on the Diagnostic and Statistical Manual of Mental Disorders, 4<sup>th</sup> Edition (DSM-IV; American Psychiatric Association, 2000). The WMH-CIDI has been compared with the Structured Clinical Interview for DSM-IV (SCID; First, Spitzer, Gibbon, & Williams, 2002) and found to have similar diagnostic consistency (Kessler et al., 2004). The social anxiety disorder module involved questions requiring respondents to reply “yes/no” if there was ever a time in their lives when they felt “very shy, afraid, or uncomfortable” with 13 social situations (e.g., meeting new people, talking to people in authority, or speaking up in a meeting or class), in addition to asking about physical symptoms associated with anxiety. The computer-based scoring system derived lifetime and 12-month prevalence; however 12-month prevalence is used in the present study in order to assess individuals with current social anxiety disorder.

4.2.2.2 Depression. Respondents were also screened for depression early in the interview. Participants were selected into the depression module based on their answers to the screener items (e.g., “Have you ever in your life had a period lasting several days or longer when most of the day you felt sad, empty, or depressed?”). Interview questions for the depression module were also based on the World Mental Health – Composite International Diagnostic Interview Instrument (WMH-CIDI; Kessler & Üstün, 2004). Within the depression module, participants were asked about their depressive symptoms including episodes of feeling “sad, empty or depressed”, loss of interest, and feelings of discouragement; duration of symptoms; and frequency of symptoms. The computer-based scoring system derived lifetime prevalence and 12-month prevalence. A continuous variable describing amount of life interference due to depression was also derived.

4.2.2.3 Chronic Distress. Chronic distress was included in the present analyses in order to assess more general well-being or lack thereof. The CCHS distress items are from the Kessler Psychological Distress Scale (Kessler & Mroczek, 1994). This 10-item scale asks respondents about their psychological distress and level of anxiety and depressive symptoms in the last month. Higher scores indicate greater distress. This measure has high internal consistency (Cornelius, Groothoff, van der Klink, & Brouwer, 2013).

4.2.2.4 Sociodemographic variables. Sociodemographic variables were assessed using categorical scales. Included in the analysis were: gender (male, female), marital status (married, common-law, widowed/separated/divorced, single), and living arrangement (unattached individual living alone, unattached individual living with others, living with spouse/partner, parent living with spouse/partner and children, single parent living with children, child living with single parent with/without siblings, other).

4.2.2.5 Social support variables. Questions assessing social support were included in this analysis, namely sense of community belonging, number of close friends and family, help seeking behaviour, and satisfaction with help received. Sense of community belonging was assessed by asking individuals “How would you describe your sense of belonging to your local community? Would you say it is very strong, somewhat strong, somewhat weak, very weak?”. Responses were measured on a 4-point scale, ranging from 1 (very strong) to 4 (very weak). Higher scores on this item are indicative of a weaker sense of community attachment. For the number of close friends and family members, participants were asked to provide a number of such people in their lives. For help

seeking behaviour, respondents were asked “Did you ever in your life see, or talk on the telephone, to a medical doctor or other professional about your [social fears]?”. Finally, their satisfaction with the professional help was also assessed by the question “Did you ever get treatment for your fear that you considered helpful or effective?”.

In addition to the above, continuous social support variables were also included in the present research. These social support items are based on sources used on the Statistics Canada National Population Health Survey (NPHS) in order to assess type of social support received, availability of support, and frequency of use of different kinds of support. Specifically, social support was assessed using the Medical Outcomes Study (MOS) Social Support Survey. This is a 19-item scale assessing four subtypes of social support:

1. Emotional/informational support (minimum = 0, maximum = 16)
2. Tangible support (minimum = 0, maximum = 12)
3. Affection (minimum = 0, maximum = 16)
4. Positive social interaction (minimum = 0, maximum = 32)

Social support was assessed using a 5-point Likert scale ranging from “none of the time” to “all of the time” as having occurred in the past 12 months. Higher subscale scores indicate greater self-reported social support. This scale has demonstrated high internal consistency and good reliability (Anderson, Bilodeau, Deshaies, Gilbert, & Jobin, 2005; Sherbourne & Stewart, 1991).



#### 4.2.3 Analytic Strategy

Social anxiety disorder (i.e., 12-month prevalence), depression (i.e., lifetime and 12-month prevalence), chronic distress, demographic variables (i.e., gender, marital status, living arrangement) and social support variables (i.e., four social support subtypes, community engagement, number of close friends/relatives, and professional help seeking behaviour) were examined. Comparisons were made between (1) individuals in the total sample to a subset of individuals who met criteria for 12-month social anxiety disorder, and (2) socially anxious males to socially anxious females.

The overall sample of respondents is being treated as a population reference, therefore when examining differences between the total sample and the subset of individuals with social anxiety disorder in categorical variables, Chi-squared Goodness of Fit tests were used. When examining gender differences in continuous variables, Chi-squared tests of independence were performed. To identify the contribution of the specific cells to the significance of the Chi-squared test of independence, adjusted standardized residuals were calculated. Adjusted standardized residuals follow the t-distribution, and for residuals that are greater than an absolute value of 1.96,  $p < .05$ . In addition, hierarchical regression analyses were conducted to assess to what extent social support predicted distress for individuals with social anxiety disorder. In these regressions, interference due to depression was entered in step 1, and the remaining variables were entered forward stepwise in Step 2 using  $p < 0.05$  for the partial - F test as criteria for inclusion.

Effect sizes were calculated using Cohen's  $d$  for mean comparisons, and  $\phi$  ( $\Phi$ ) when Chi-squared tests were used. The appropriate statistical weights provided by Statistics Canada were used to ensure the representativeness of these data to the Canadian population.

### 4.3 Results

4.3.1 Prevalences. Of the total sample of 36,984 respondents, 7,749 individuals were identified as potentially socially anxious using the initial screening items, and were selected to complete the social anxiety disorder module of the CCHS. Of these 7,749 individuals who were screened in and completed the social anxiety disorder module, 1,189 met 12-month criteria (54.4% female; 3.2% of total Canadian sample), indicating that they had experienced a social anxiety disorder episode within the last 12 months. Nearly half of the respondents with current social anxiety, or 44.5%, met diagnostic criteria for lifetime major depression and 33.8% met 12-month criteria for major depression, indicating significant comorbidity. Chi-squared tests of independence suggested that there were no gender differences for either lifetime or current major depressive disorder,  $\chi^2(1, N = 1,182) = 0.01, p = .92$ , and  $\chi^2(1, N = 1,183) = 0.61, p = .43$ , respectively.

For the total sample, mean distress score was 5.42 (SD = 5.89), and for the socially anxious subset the mean distress score was 14.39 (SD = 8.14). A one-sample  $t$ -test indicated that there was a significant difference,  $t(1,187) = 37.99, p < 0.001$ , indicating that the subset of individuals with current social anxiety have higher levels of

distress than the total sample. For socially anxious individuals, there was no gender difference for chronic distress,  $t(1,186) = 1.09$ ,  $p = 0.28$ .

4.3.2 Sociodemographic Variables. Frequency analyses for demographics for the 1,189 individuals who met criteria for current social anxiety disorder are presented in Table 4-1 and demographics for the total sample and the social anxiety subset are presented in Table 4-2. A Chi-squared test of independence was significant,  $\chi^2(3, N = 1,187) = 17.58$ ,  $p < .01$ , suggesting that a greater number of socially anxious females than males were widowed, separated, or divorced and that more socially anxious males than females were single (adjusted standardized residuals 3.6 and 3.4, respectively). The effect size for this test was .12, or small. A Chi-squared Goodness of Fit test was significant  $\chi^2(3, N = 1,187) = 171.49$ ,  $p < .001$ , suggesting that as compared to the total sample, the social anxiety disorder subset are less likely to be married or widowed, separated, or divorced, and more likely to be in a common law relationship or single than individuals in the total sample. The effect size for this test was .38, or medium. For living arrangement, a Chi-squared test of independence was significant,  $\chi^2(7, N = 1,179) = 38.04$ ,  $p < .001$ , suggesting that more socially anxious males than females reported being unattached and lived alone, and that more females than males were single parents living with children (adjusted standardized residuals 3.0, and 5.3, respectively). The effect size for this test was .18, or small. A Chi-squared Goodness of Fit test was significant,  $\chi^2(7, N = 1,179) = 117.66$ ,  $p < .001$ , and suggested that socially anxious respondents were more likely than individuals in the total sample to be unattached

Table 4-1

## Sociodemographic Frequencies for Individuals with Current Social Anxiety Disorder

Sociodemographic Variable	Frequency, Percent					
	Males n = 449		Females n = 738		Total n = 1189	
Marital Status						
Married	119	26.5%	209	28.3%	328	27.6%
Common-Law	46	10.2%	70	9.5%	116	9.8%
Widowed, Separated, Divorced	73	16.3%	186	25.2%	259	21.8%
Single	211	47.0%	273	37.0%	484	40.7%
Living Arrangement						
Unattached Individual Living Alone	157	35.0%	195	26.7%	352	29.6%
Unattached Individual Living with Others	26	5.8%	40	5.5%	66	5.6%
Living with Spouse or Partner	71	15.8%	137	18.8%	208	17.5%
Parent Living with Spouse/Partner, and Children	81	18.0%	118	16.2%	199	16.7%
Single Parent Living with Children	15	3.3%	90	12.3%	105	8.8%
Child Living with Single Parent with/without Siblings	27	6.0%	32	4.4%	59	5.0%
Child Living with Two Parents with/without Siblings	55	12.2%	76	10.4%	131	11.0%
Other	17	3.8%	42	5.8%	59	5.0%

Table 4-2

Sociodemographic Frequencies for the Total Sample and Social Anxiety Subset

Sociodemographic Variable	Frequency, Percent			
	Total Sample n = 36,984		Socially Anxious n = 1,189	
Marital Status				
Married	16,332	44.2%	328	27.6%
Common-Law	2,852	7.7%	116	9.8%
Widowed, Separated, Divorced	7,959	21.5%	259	21.8%
Single	9,798	26.5%	484	40.7%
Living Arrangement				
Unattached Individual Living Alone	9,941	26.9%	352	29.6%
Unattached Individual Living with Others	1,523	4.1%	66	5.6%
Living with Spouse or Partner	9,857	26.7%	208	17.5%
Parent Living with Spouse/Partner, and Children	7,792	21.1%	199	16.7%
Single Parent Living with Children	1,963	5.3%	105	8.8%
Child Living with Single Parent with/without Siblings	1,096	3.0%	59	5.0%
Child Living with Two Parents with/without Siblings	2,886	7.8%	131	11.0%
Other	1,667	4.5%	59	5.0%

individuals living alone, unattached individuals living with others, a single parent living with one or more children, or a child living with either one or both parents. Socially anxious respondents were also less likely than those in the total sample to be living with a spouse or a parent living with a spouse and children. The effect size for this test was .31, or medium.

4.3.3 Social Support Variables. See Table 4.3 for social support means and t-tests. For sense of community belonging, independent samples t-tests indicated that there were no significant gender differences for socially anxious males or females. A one-sample t-test indicated that there was a significant difference for socially anxious individuals and all respondents,  $t(1,189) = 14.18$ ,  $p < 0.001$ , indicating that non-socially anxious report a greater sense of community belonging. The effect size for this difference was .41, or medium.

Socially anxious individuals reported an average of 5.43 (SD = 5.46) close friends and relatives. An independent samples t-test indicated that there was no gender difference for socially anxious individuals. A one-sample t-test indicated that socially anxious individuals reported having significantly fewer close friends and family members than the total sample,  $t(1,189) = 15.64$ ,  $p < 0.001$ . The effect size for this difference was medium, at 0.46.

For the socially anxious sample, 45.84% ( $n = 545$ ) reported consulting a medical doctor or another professional about their social fears. A Chi-squared test of independence was significant,  $\chi^2(1, N = 1,189) = 3.81$ ,  $p < .05$ , suggesting that a greater

Table 4-3

Comparisons of Social Support Variables

	Full sample n = 36,984 M (SD)		Current SA n = 1,189 M (SD)		One-Sample t-tests
Sense of belonging to local community *	2.33	(0.94)	2.71	(0.92)	t = 14.18, p < .001
Number of close friends and relatives	7.92	(8.58)	5.43	(5.46)	t = - 15.64, p < .001
Social Support Subscales					
Tangible	13.15	(3.64)	11.24	(4.45)	t = - 14.64, p < .001
Affection	10.40	(2.52)	9.07	(3.31)	t = - 13.66, p < .001
Positive Social Interaction	13.45	(3.29)	11.29	(4.21)	t = - 17.48, p < .001
Emotional/Informational	26.58	(6.49)	22.44	(8.12)	t = - 17.37, p < .001
	SA Males n = 449 M (SD)		SA Females n = 739 M (SD)		Independent Samples t-test
Sense of belonging to local community*	2.75	(0.93)	2.68	(0.92)	t = 1.12, n.s.
Number of close friends and relatives	5.37	(6.17)	5.47	(4.98)	t = - .29, n.s.
Social Support Subscales					
Tangible	10.88	(4.67)	11.45	(4.30)	t = - 2.09, p < .05
Affection	8.47	(3.58)	9.44	(3.08)	t = - 4.71, p < .001
Positive Social Interaction	10.79	(4.33)	11.60	(4.10)	t = -3.23, p < .01
Emotional/Informational	21.08	(8.52)	23.27	(7.75)	t = - 4.39, p < .001

Note. SA = Socially Anxious

\* Higher scores indicate lower sense of community belonging

number of socially anxious females than males sought treatment for their social anxiety (adjusted standardized residual 2.0). The effect size for this difference was .05, or small.

A follow up item asked participants to rate their satisfaction with the help that they received; 67.89% of males who consulted with a professional and 68.17% of females who consulted with a professional responded that they were satisfied. A Chi-squared test of independence indicated that there were no significant gender differences for satisfaction,  $\chi^2(1, N = 543) = 0.001, p = .98$ .

Independent samples t-tests indicated that there were gender differences for socially anxious individuals on the four MOS social support scales (see Table 4-3 for means and t values). Socially anxious males had significantly lower means than females on all of the four scales, indicating that they have lower amounts of social resources in those areas. The effect sizes for these differences were small: 0.13, 0.28, 0.19, and 0.26, respectively. One-sample t-tests indicated that respondents with social anxiety report significantly lower levels of all four forms of social support than individuals in the total sample, (ts range from -17.48 to -13.66, all ps < 0.001. The effect sizes for these differences were medium: 0.43, 0.43, 0.52, and 0.51, respectively.

4.3.4 Social Support as a Predictor of Chronic Distress. Regression analyses were conducted separately by gender to assess to what extent each of the four subtypes of social support and sense of community belonging predicted chronic distress for individuals with social anxiety disorder. Due to high depression comorbidity, it was necessary to control for depressive symptoms; this was accomplished by entering interference caused by depression in Step 1 of the models. After entering depression in



Step 1, the four social support subtypes and sense of community belonging were entered forward stepwise in Step 2. For males, after controlling for depression, which significantly predicted distress ( $R^2 = 0.15$ ,  $p < 0.01$ ), the social support variables entered in Step 2 did not predict a significant amount of variance. These findings indicate that for socially anxious males, social support variables were not related to distress. Regression coefficients are presented in Table 4.4.

For females, after controlling for depression in Step 1, which significantly predicted social anxiety interference ( $R^2 = 0.06$ ,  $p < 0.001$ ), the resulting model indicated that only the positive social interactions subscale significantly contributed to the variance in distress in Step 2 ( $R^2$  Change = 0.04,  $p < 0.01$ ). These findings indicate that for socially anxious females, increases in positive social interactions are associated with decreased distress. Regression coefficients for the final models are presented in Table 4-4.

#### 4.4 Discussion

The objectives of this study were to present gender differences in social variables and to determine whether social support is predictive of distress in Canadians with social anxiety disorder. The findings of this study show that individuals with social anxiety disorder experience significant social impairment and distress, and that social support differentially predicts distress in socially anxious males and females. The results were partly consistent with the first hypothesis that there would be gender differences in social variables; however it is difficult to conclude that either gender experiences greater impairment than the other. As for social support predicting distress, the findings were somewhat consistent with the second hypothesis that the social support subtypes would

Table 4-4

Regression coefficients for hierarchical regression examining social support as a predictor of chronic distress

	B	SE B	$\beta$
Socially Anxious Males (n = 151)			
Step 1			
Constant	11.95	1.74	
Depression Interference	1.29	.25	.39*
Socially Anxious Females (n = 227)			
Step 1			
Constant	12.86	1.71	
Depression Interference	1.02	.26	.26*
Step 2			
Constant	17.92	2.35	
Depression Interference	.87	.26	.22*
Positive Social Interaction	-.38	.13	-.20*

\*  $p < .05$

differentially predict distress for males and females with social anxiety disorder. Social support did function differently by gender, but the pattern of distress prediction was not the same as that found by Fowler and colleagues (Fowler et al., 2013; Wareham et al., 2007) who demonstrated that emotional and informational support were associated with increases in depression severity in males and tangible support was related to an increase in depression severity in females.

Social support availability. First, socially anxious males had lower means for all four types of social support than females; namely, tangible support, affection, positive social interaction, and emotional/informational support. This finding indicates that males with social anxiety disorder have fewer social resources in all social support categories.

One of the more notable findings pertains to social support in the form of professional help. Socially anxious respondents were asked whether they had consulted a medical doctor or other health professional about their social fears. Significantly more females than males reported such a consultation: 48.0% vs. 42.2%. This is not surprising, as females are generally more likely than males to seek health-related help (see Galdas, Cheater, & Marshall, 2005 for a review); however, it was interesting to note that there was no gender difference for satisfaction. This result has important implications for treatment, namely that attracting male clientele may be more important than tailoring treatment to males specifically, since men that do attend treatment report similar levels of satisfaction as women.

Social support and distress. As for the predictive power of the subtypes of social support, it was found that for males, none of the tested social variables were associated

with distress. For females with social anxiety disorder, positive social interactions were associated with a decrease in chronic distress. This finding is in line with the stress-buffering hypothesis (Cohen & McKay, 1984; Cohen & Wills, 1985) whereby the effects of stress may be reduced for individuals who have stronger social support systems. The items in the questionnaire pertaining to positive social interactions asked respondents to indicate the degree to which they had someone to have a good time with, to get together with for relaxation, to do things with to help him/her get their mind off things, and to do something enjoyable with. Presumably, having social support of this nature would increase positive affect, which is associated with better health and well-being (Cohen & Pressman, 2006). Additionally, according to Fredrickson's broaden-and-build theory (Fredrickson & Joiner, 2002; Fredrickson, 1998, 2001), positive affect broadens one's mindset, encouraging new thoughts and actions. Over time, these new thoughts and actions build physical, intellectual, social, and psychological resources. According to this model, an individual with social anxiety disorder who is able to experience happiness through positive social interaction will be able to increase his/her social and psychological resources over time. These increased resources may reduce their psychological distress in an upward spiral. However, these data suggest that this would be the case only for females with social anxiety disorder. It is unclear whether the reduction in distress is due to participating in the positive social interaction, or being the recipient of positive social interactions. The social support questions in the current study ask the participant whether he/she has someone who can provide them with positive social

interactions; therefore, determining whether socially anxious “providers” have a reduction in distress was not possible.

**Limitations.** The findings of the present research must be interpreted in light of several limitations. First, diagnoses of social anxiety disorder and major depressive disorder in the CCHS were not assessed by clinicians; rather the questionnaire was conducted by trained interviewers. Therefore, it is difficult to ensure diagnostic accuracy, and thus the accuracy of the conclusions that have been drawn. Second, these data was collected in 2002, so it may differ from more recent data of this nature. Another significant limitation is concerning item wording. For example, the item assessing number of close friends and family is problematic due to the meaning of “close” possibly being vague and imprecise; and therefore could be interpreted differently by males and females. Also, this item is double-barrelled: a person may have a large number of “close” family members, but no friends, or vice versa. There may be some qualitative difference in relationships between friends or family with respect to the ameliorative nature of social networks. The item which asks respondents whether they have sought treatment only provides a modest amount of information. Further research should examine the extent to which and duration a person was involved in treatment. It is likely that there are differences between those who sought treatment, those who did not complete treatment, and those who participated in a full course of treatment. Moreover, some of the variables included in these analyses consist of only one or two items, such as whether they have sought treatment, which may impact construct validity. Finally, the cross sectional nature

of these data precluded the examination of causal factors. A longitudinal study may be preferable; however, costs for this amount of data collection would likely be prohibitive.

Many of the items in the current study refer to participants as a recipient of social support from the people in their immediate and surrounding social networks. An important line of future inquiry would be to determine whether being a provider of such support has any ameliorative effects for individuals with social anxiety disorder. There is some existing literature which demonstrates that helping others has positive effects on mental health in nonclinical populations (e.g., Lum & Lightfoot, 2005; Thoits & Hewitt, 2001). Therefore, there may be some value in determining whether providing social support, such as volunteering, offers some degree of distress reduction for individuals with social anxiety disorder, despite the inherent difficulties in engaging with others. Individuals with social anxiety disorder shift their attention inwards to focus on the self which can interfere with noticing situational events and social cues, creating anxiety and negative thoughts about the self (Perowne & Mansell, 2002; Woody, 1996). Perhaps engaging in helping behaviour would serve to reduce or shift the maladaptive self-focused attentional bias that affects these individuals. Finally, it would be worth examining the effects of variables such as self-efficacy and coping with social support on distress to determine the relative predictive power. It would be beneficial to determine whether one's coping resources surpass social support in determining an individual's well-being.

**Conclusions.** Despite the minor shortcomings of this research, the present study provides beneficial information for mental health service providers. Specifically, the ameliorating effects of positive social interactions for socially anxious women can be

taken into account in treatment planning. A socially anxious person's social environment should be considered among all factors during the course of treatment. Similarly, the community in which a socially anxious individual resides is also an important factor, especially for females as positive social interactions may be a protective factor for anxiety and distress. The quality of the community as well as the perceived sense of engagement will be a factor in determining an individual's mental health and well-being.

## Chapter 5: Study 3 - Gender Differences in Coping Behaviours and Stress in Social Anxiety Disorder

Social anxiety disorder, or social phobia, is the excessive fear of social interactions and performances as a result of evaluation concerns and is associated with significant distress and impairment (American Psychiatric Association, 2013). Socially anxious individuals experience negative-self judgment and engage in safety behaviours in order to alleviate discomfort (McManus et al., 2008; Wells et al., 1995). Safety behaviours are methods employed to cope with the stress of a social situation, such as avoiding eye contact, becoming withdrawn, or leaving the situation completely. Although there is a body of literature describing safety behaviours in social anxiety, there is a lack of research examining how individuals with social anxiety disorder cope more generally with stress. Therefore, the purpose of the current study was to examine coping behaviours, sources of stress, and perceptions of coping self-efficacy in individuals with current social anxiety disorder.

Coping is often conceptualized as emotion-focused or problem-focused (Lazarus & Folkman, 1984). Emotion-focused coping is defined as cognitive efforts to manage emotional distress, such as avoidance, minimization, distancing, selective attention, and positive comparisons. Problem-focused coping are behaviours or cognitions directed at solving a problem, including strategies such as defining the problem, generating alternate solutions, weighing the alternatives, and taking action. Although problem-focused coping is often externally directed, it can also include internally oriented efforts that are directed



towards the self. Such internally-directed coping methods can include shifting the level of one's aspiration, learning new skills, or cognitive reappraisal.

Both emotion-focused and problem-focused strategies can be either functional or dysfunctional. Within the context of social anxiety disorder, functional coping consists of some method that reduces anxiety in a social situation without maintaining or exacerbating similar responses in the future (Wells & Clark, 1997). Dysfunctional coping usually involves some aspect of escape from the situation and the associated affective responses (Carver et al., 1989). A dysfunctional coping method, such as physically exiting from the situation or drinking more alcohol than usual may alleviate anxiety temporarily; however, it will often result in maintaining that individual's anxiety response in future social situations (Thwaites & Freeston, 2005).

There is a lack of research examining general stress-related coping behaviours within the context of social anxiety disorder; however, coping in social anxiety disorder can be conceptualized as existing along a continuum with adaptive coping behaviours on one end of this spectrum and safety behaviours, or dysfunctional coping on the opposite end (Thwaites & Freeston, 2005). Thwaites and Freeston (2005) distinguished safety behaviours from adaptive coping on the basis of whether the behaviour is repeated, excessive, or inappropriate. More recently, Thomasson and Psouni (2010) showed that low self-efficacy and the use of dysfunctional coping methods were associated with increased social anxiety. Additionally, they provided evidence that dysfunctional coping mediates the relationship between self-efficacy and social anxiety impairment.

Self-efficacy, or the belief that an individual has the ability to bring about change in his/her life, is often context dependent (Bandura, 1977). There is some research documenting the links between social anxiety and social self-efficacy, namely that higher levels of social anxiety are associated with lower perceptions of social competence (Kashdan & Roberts, 2004; Leary & Atherton, 1986); however, to date, there is a lack of research examining the relationship of social anxiety to coping self-efficacy. Coping self-efficacy is the belief in one's ability to cope effectively when in a challenging situation, and is related to increased use of problem-focused coping, as well as a reduction in stress and increases in well-being (Cieslak et al., 2008; Endler et al., 2000; Wiedenfeld et al., 1990).

### 5.1 Study 3

There are several published studies examining social anxiety disorder using Canadian nationally representative data (Chartrand et al., 2011; Cox et al., 2008; MacKenzie & Fowler, 2013; Shields, 2004); however, these do not examine coping behaviours or self-efficacy beliefs in relation to chronic distress. Therefore, the first objective of the present study is to extend the literature by exploring coping and stress-related variables for individuals with current social anxiety disorder and to provide a point of reference for this area of research. Considering the near ubiquity of safety behaviour use in individuals with social anxiety disorder, it is expected that there will be differences in frequency of particular coping behaviours for individuals with current social anxiety disorder as compared to the total sample. Gender differences in the use of specific coping behaviours will also be explored. Sources of stress will be examined, and

it is expected that the stressors will differ by gender for respondents with social anxiety disorder, as well as between the social anxiety disorder subset as compared to the total sample. Also, coping self-efficacy will be assessed, and it is expected that there will be gender differences for items related to self-efficacy for individuals with social anxiety disorder, as well as between the social anxiety subset as compared to the total sample.

As indicated above, coping behaviours and self-efficacy have significant associations with distress and negative affect. It is likely that various coping behaviours may impact one's psychological distress; therefore, the second objective of the present research is to determine the relative contribution of coping behaviours and possible gender interactions in the prediction of distress for individuals with current social anxiety disorder. Thus, the final hypothesis in the present study is that coping behaviours will differentially predict distress by gender for individuals with social anxiety.

These two objectives will be addressed using the Canadian Community Health Survey on Mental Health, which is a large scale survey that provides nationally representative data. The present study addresses some methodological shortcomings inherent in clinical research by the use of a very large sample size, as well as the inclusion of non-treatment seeking individuals with clinical levels of social anxiety. As such, this study will provide a more complete profile of individuals with current social anxiety disorder.

## 5.2 Method

### 5.2.1 Participants.

Data from the public use files of the Canadian Community Health Survey on Mental Health and Well Being cycle 1.2 (CCHS 1.2) were analysed. A full description of CCHS cycle 1.2 is available elsewhere (Gravel & Béland, 2005) but will be described briefly here. Statistics Canada collected these data between May 2002 and January 2003 with the intent to assess the prevalence and impact of mental disorders in Canada. These data provide cross-sectional data from 36,984 adult Canadians, aged 15-80+ years who were living in private residences in 10 provinces. Individuals who were excluded from this survey were: those living in the three territories and some remote areas; those living on reserves and Crown lands; the institutionalized population; and full time members of the Canadian Forces.

5.2.1.1 Data collection. The CCHS questionnaire was administered using computer-assisted interviewing. To select the sample, the CCHS used three sampling frames: 58.5% of the sample of households came from a list frame of telephone numbers, 40.5% of households came from an area frame, and the remaining 1% came from a random digit dialling sampling frame. Sample units selected from the area frame were interviewed using a computer-assisted interviewing method while sample units selected from the telephone list frames and random digit dialling were interviewed using a computer-assisted telephone interviewing method. The response rate for this survey was 77%, and the selection method, exclusions, and a description of the full procedures can be found in Gravel and Béland (2005).

5.2.1.2 Weighting. To ensure that estimations from the survey data represent the population, survey weights have been incorporated into calculations. Survey weights have been assigned to each respondent in order to estimate probability within this sample. In a sample such as this, the principle behind probability estimation is that each respondent “represents” people in the population who are not in the sample. The weighting phase is a step that calculates each person’s associated sampling weight, which corresponds to the number of people in the population represented by the respondent. This weight is found in the microdata file, and is used to derive meaningful estimates from the survey.

## 5.2.2 Measures

5.2.2.1 Social anxiety disorder. Individuals were given five dichotomous screening yes/no questions to identify possible social anxiety disorder (e.g., “Was there ever a time in your life when you felt very afraid or really, really shy with people; for example, meeting new people, going to parties, going on a date, or using a public bathroom?”). Individuals who answered yes to the screener items were then assessed for social anxiety disorder with items based on the World Mental Health – Composite International Diagnostic Interview Instrument (WMH-CIDI; Kessler & Üstün, 2004). The WMH-CIDI is a psychiatric diagnostic interview identifying mental disorders based on the Diagnostic and Statistical Manual of Mental Disorders, 4th Edition (DSM-IV; American Psychiatric Association, 2000). The WMH-CIDI has been compared with the Structured Clinical Interview for DSM-IV (SCID; First, Spitzer, Gibbon, & Williams, 2002) and found to have similar diagnostic consistency (Kessler et al., 2004). The social anxiety disorder module involved questions requiring respondents to reply “yes/no” if

there was ever a time in their lives when they felt “very shy, afraid, or uncomfortable” with 13 social situations (e.g., meeting new people, talking to people in authority, or speaking up in a meeting or class), in addition to asking about anxiety-related physical symptoms. The computer-based scoring system derived lifetime and 12-month prevalence; however 12-month prevalence is used in the present study in order to assess individuals with current social anxiety disorder. Another derived variable described interference due to social anxiety disorder in the preceding 12 months with respect to daily activities and responsibilities.

5.2.2.2 Depression. Participants were selected into the depression module based on their answers to the depression screener items (e.g., “Have you ever in your life had a period lasting several days or longer when most of the day you felt sad, empty, or depressed?”). Interview questions for the depression module were also based on the World Mental Health – Composite International Diagnostic Interview Instrument (WMH-CIDI; Kessler & Üstün, 2004). Within the depression module, participants were asked about their depressive symptoms including episodes of feeling “sad, empty or depressed”, loss of interest, and feelings of discouragement; duration of symptoms; and frequency of symptoms. For the purposes of the current research, the derived variable assessing amount of life interference due to depression was used.

5.2.2.3 Psychological Distress. Distress was assessed within the CCHS using items from the Kessler Psychological Distress Scale (Kessler & Mroczek, 1994). This 10-item scale asks respondents to rate their psychological distress and level of anxiety and depressive symptoms in the last month. Higher scores indicate greater distress. Higher

scores indicate greater distress. This measure has high internal consistency (Cornelius et al., 2013).

5.2.2.4 Stress and Coping. A total of 16 items were included in this module. Two questions assessed coping self-efficacy (“In general, how would you rate your ability to handle unexpected and difficult problems, for example, a family or personal crisis?” and “In general, how would you rate your ability to handle the day-to-day demands in your life, for example, handling work, family and volunteer responsibilities?”). These two items were rated on a five point scale ranging from 1 (excellent) to 5 (poor). One item asked respondents to identify the stressor that contributed most to their stress from a provided list. Sample responses included: “Own emotional or mental health problem”, “Financial situation”, and “Personal relationships”. Thirteen additional questions in this module assessed coping strategies and were derived from several coping scales including the Ways of Coping Revisited (WOC-R; Folkman & Lazarus, 1985), the Coping Strategy Indicator (CSI; Amirkhan, 1990), and the COPE scale (Carver et al., 1989). Respondents rated their frequency of using each coping method on a 4-point scale ranging from 1 (often) to 4 (never). Sample items included: “Try to solve the problem” and “Try to feel better by drinking alcohol”.

5.2.2.5 Social support variables. Questions assessing social support were included in this analysis, namely sense of community belonging, number of close friends and family, and the Medical Outcomes Study (MOS) Social Support Survey. Sense of community belonging was assessed by asking individuals “How would you describe your sense of belonging to your local community? Would you say it is very strong, somewhat

strong, somewhat weak, very weak?”. Responses were measured on a 4-point scale, ranging from 1 (very strong) to 4 (very weak). Higher scores on this item are indicative of a weaker sense of community attachment. For the number of close friends and family members, participants were asked to provide a number of such people in their lives. The 19-item Medical Outcomes Study (MOS) Social Support Survey assessed four subtypes of social support: Emotional/informational support, tangible support, affection, and positive social interactions. Social support was assessed using a 5-point Likert scale ranging from “none of the time” to “all of the time” as having occurred in the past 12 months. Higher subscale scores indicate greater self-reported social support. This scale has demonstrated high internal consistency and good reliability (Anderson et al., 2005; Sherbourne & Stewart, 1991).

### 5.2.3 Analytic strategy.

Social anxiety disorder (i.e., 12-month prevalence), depression interference, chronic distress, stress and coping (two coping self-efficacy variables, most important source of stress, and 13 coping behaviours), social support (sense of community belonging, number of close friends/family members, and the four MOS subscales) were examined. The 13 coping items were included in a principal components factor analysis to identify underlying factors. Total scores for each factor were calculated by averaging responses on the items that loaded onto each factor. To examine frequency of use for each coping strategy factor, these total scores were dichotomized into  $\leq 2.50$  and  $\geq 2.51$  to correspond to “often”/“sometimes” and “rarely”/“never” on the response scale.

Moderated regression analyses were used to examine the effects of coping and gender on



psychological distress. The appropriate statistical weights provided by Statistics Canada were used to ensure the representativeness of the data to the Canadian population.

### 5.3 Results

Of the total sample of 36,984 respondents, 7,749 individuals were identified as potentially socially anxious using the screening items, and were selected to complete the social anxiety disorder module of the CCHS. Of these 7,749 individuals who were screened in and completed the social anxiety disorder module, 1,189 met 12-month criteria (54.4% female; 3.2% of total Canadian sample), indicating that they had experienced a social anxiety disorder episode within the last 12 months.

5.3.1 Coping with Stress. For the 1,189 individuals with current social anxiety disorder, the mean score for self-perceived ability to handle unexpected problems was 3.06 (SD = 1.09), and the mean score for self-perceived ability to handle day-to-day demands was 2.93 (SD = 0.10). Males with social anxiety disorder reported mean scores of 3.04 (SD = 1.12) and 3.00 (SD = 1.02) for the unexpected problems and day-to-day demand items, respectively. Females with social anxiety disorder reported mean scores of 3.07 (SD = 1.08) and 2.89 (SD = 0.98) for the unexpected problems and day-to-day demand items, respectively. There was no significant gender difference for these two items,  $t(1185) = 0.39$  and  $t(1184) = 1.80$ , both  $ps > .05$ . For the total sample, the means were 2.35 (SD = 0.93) and 2.20 (SD = 0.85), respectively for the two self-efficacy items. One-sample  $t$ -tests indicated that the subset of individuals with current social anxiety disorder rated their self-efficacy significantly lower than the total sample,  $t(1186) =$

22.37, and 25.36, respectively, both  $ps < .001$ . The effect sizes for these differences were 0.66 and 0.75, or medium.

Respondents were asked to identify their most important sources of stress. The frequencies and percentages of item endorsement are found in Table 5-1. A Chi-squared test of independence indicated that for individuals with current social anxiety disorder, there were significant gender differences for: own work situation, caring for children, discrimination, and health of family members (adjusted standardized residuals 4.3, 3.2, 2.2, and 2.0, respectively),  $\chi^2(16, N = 1,189) = 43.60, p < .001$ ). Socially anxious males were significantly more likely to endorse own work situation and discrimination, and significantly less likely to endorse caring for children and health of family members than socially anxious females. The effect size for this difference was 0.19, or small. A Chi-squared goodness of fit test comparing the current social anxiety subset to the total sample was significant,  $\chi^2(16, N = 1,189) = 854.795, p < .001$ , indicating significant differences with respect to most important sources of stress. The observed-expected residuals for own emotional/mental health problem and nothing contributed a large amount to the  $\chi^2$  value, 109.7 and -151.3, respectively.

The factor analysis of the coping items used by the socially anxious subset revealed 4 distinct coping factors with eigenvalues greater than 1 (see Table 5.2). Adaptive Coping (factor 1, 17.70% of the variance) consisted of problem solving, jogging or other exercise, doing something enjoyable, and looking on the bright side of things. Maladaptive Coping (factor 2, 11.56% of the variance) consisted of sleeping more than

Table 5-1

## Sources of Stress Frequencies

Source of Stress	SAD Males n = 448 n, %		SAD Females n = 738 n, %		All SAD n = 1189 n, %		Total Sample n = 36,692 n, %	
Time Pressures/Not Enough Time	28	6.2	60	8.1	88	7.4	4570	12.4
Own Physical Health Problem	37	8.2	47	6.4	84	7.1	3073	8.3
Own Emotional/Mental Health Problem	49	10.9	81	11.0	130	10.9	621	1.7
Financial Situation	59	13.1	124	16.8	183	15.4	4551	12.3
Own Work Situation*	103	22.9	99	13.4	202	17.0	6354	17.2
School	27	6.0	39	5.3	66	5.6	1565	4.2
Employment Status	18	4.0	25	3.4	43	3.6	823	2.2
Caring for Own Children*	4	0.9	30	4.1	34	2.9	1030	2.8
Caring for Others	3	0.7	9	1.2	12	1.0	338	0.9
Other Personal/Family Responsibilities*	27	6.0	53	7.2	80	6.7	1972	5.3
Personal Relationships	38	8.4	69	9.3	107	9.0	1929	5.2
Discrimination*	3	0.7	0	0.0	3	0.3	46	0.1
Personal and Family Safety	5	1.1	14	1.9	19	1.6	574	1.6
Health of Family Members	7	1.6	26	3.5	33	2.8	2173	5.9
Other	32	7.1	54	7.3	86	7.2	1914	5.2
Nothing	6	1.3	5	0.7	11	0.9	5039	13.6
Death of a Loved One	1	0.2	3	0.4	4	0.3	154	0.4

Note. SAD = Social Anxiety Disorder

\* indicates that frequencies differ significantly by gender,  $p < .001$

usual, eating more/less than usual, blaming oneself, wishing the situation would go away, and using medication or drugs. Substance Use (factor 3, 9.12% of the variance) consisted of smoking cigarettes, drinking alcohol, and using drugs or other medications. Social Avoidance (factor 4, 8.04% of the variance) consisted of talking to others and avoiding people.

In contrast, a factor analysis of coping behaviours used by the total sample of respondents revealed only 3 distinct coping factors with eigenvalues greater than 1 (see Table 5.3). Maladaptive Coping (factor 1, 18.19% of the variance) consisted of avoiding people, sleeping more than usual, eating more/less than usual, blaming oneself, and wishing the situation would go away. Adaptive Coping (factor 2, 13.88% of the variance) consisted of problem solving, talking to others, jogging or other exercise, doing something enjoyable, and looking on the bright side of things. Substance Use (factor 3, 8.85% of the variance) consisted of smoking cigarettes, drinking alcohol, and using drugs or medication.

Table 5-4 contains descriptive statistics and frequency of use for each coping factor. For the socially anxious subset, social avoidance and adaptive coping behaviours were used most frequently, followed by maladaptive behaviours and substance use. For the total sample, adaptive coping behaviours were used most frequently, followed by maladaptive behaviours and substance use.

A one-way ANOVA was conducted to determine if there were gender differences with respect to mean endorsement of the four coping factors for individuals with social

Table 5-2

Eigenvalues and Factor Loadings for Coping Factors used by the Socially Anxious Subset

	Coping Factor Eigenvalue (% Variance Explained) and Factor Loadings			
	Adaptive	Maladaptive	Substance Use	Social
	2.30 (17.70)	1.50 (11.56)	1.19 (9.18)	1.05 (8.04)
Problem solving	.62	-.12	.02	-.29
Talking to others	.35	.11	.04	-.71
Avoiding being with people	-.04	.32	.14	.74
Sleeping more than usual	.03	.60	.16	.35
Eating more or less than usual	-.05	.70	-.08	-.08
Smoking more cigarettes than usual	-.16	.09	.75	.04
Drinking alcohol	.04	.10	.72	.09
Using drugs or medication	-.13	.28	.42	.41
Jogging or other exercise	.51	.05	-.13	-.08
Doing something enjoyable	.72	-.03	-.14	-.07
Looking on the bright side of things	.67	-.23	.02	-.22
Blaming oneself	-.16	.58	.26	.23
Wishing situation would go away	-.07	.49	.11	.11

Factor loadings greater than 0.35 are in bold.

Table 5-3

Eigenvalues and Factor Loadings for Coping Factors used by the Total Sample

	Coping Factor Eigenvalue (% Variance Explained) and Factor Loadings		
	Maladaptive	Adaptive	Substance Use
	2.36 (18.19)	1.81 (13.88)	1.15 (8.85)
Problem solving	-.08	.59	-.01
Talking to others	.04	.58	-.06
Avoiding being with people	.63	-.21	.22
Sleeping more than usual	.62	-.09	.22
Eating more or less than usual	.65	-.01	.06
Smoking more cigarettes than usual	.10	-.06	.76
Drinking alcohol	.24	-.01	.69
Using drugs or medication	.27	-.13	.57
Jogging or other exercise	.35	.41	-.13
Doing something enjoyable	.10	.67	-.07
Looking on the bright side of things	-.23	.67	-.09
Blaming oneself	.63	.02	.20
Wishing situation would go away	.51	.10	.18

Factor loadings greater than 0.35 are in bold.

Table 5-4

## Descriptive Statistics and Frequency of use for Coping Factors

	Mean* (SD)	Frequency, n (%)			
		Often/Sometimes		Rarely/Never	
Socially anxious subset, n = 1,189					
Adaptive	2.00 (0.55)	1033	(86.9)	151	(12.7)
Maladaptive	2.37 (0.52)	970	(81.6)	214	(18.0)
Substance Use	3.43 (1.07)	209	(17.6)	978	(82.3)
Social	2.55 (0.72)	1068	(89.8)	119	(10.0)
Total sample, N = 36,984					
Adaptive	1.84 (0.49)	33223	(89.8)	3256	(8.8)
Maladaptive	2.79 (0.61)	11466	(31.0)	24902	(67.3)
Substance Use	3.88 (0.64)	1717	(4.6)	35082	(94.9)

\* For all coping factors, higher means are indicative of lower endorsement

anxiety disorder. There was a significant effect of gender on maladaptive coping [ $F(1, 1182) = 24.90, p < .001$ ], substance use [ $F(1, 1184) = 8.46, p < .01$ ], and social avoidance [ $F(1, 1185) = 25.25, p < .001$ ]. These results indicate that socially anxious females endorse maladaptive coping and social avoidance more than socially anxious males, and that socially anxious males are more likely to endorse substance use to cope than socially anxious females. See Table 5-5 for means by gender.

A second one-way ANOVA was conducted to determine if there were gender differences with respect to mean endorsement of the three coping factors for individuals in the total sample. There was a significant effect of gender on adaptive coping [ $F(1, 36366) = 650.11, p < .001$ ], maladaptive coping [ $F(1, 36477) = 563.89, p < .001$ ], and substance use [ $F(1, 36797) = 190.89, p < .001$ ]. These results indicate that females endorse adaptive and maladaptive coping more than males, and that males are more likely to endorse substance use to cope than females. See Table 5-5 for means by gender.

**5.3.2 Coping and Social Support as Predictors of Distress.** A moderated regression was conducted to examine the effect of coping behaviour on distress by gender for individuals with social anxiety disorder. Gender was dummy coded with males coded 0 and females coded 1, and the four coping factors were centered as described by Aiken and West (1991). Gender, the four coping factors, and the four Coping X Gender interaction terms were entered into the regression. The results indicated that the overall model was significant and that there were significant main effects for gender, adaptive



Table 5-5

Means for Coping Factors by Gender

	Males Mean* (SD)	Females Mean* (SD)
Socially anxious subset, n = 1,189		
Adaptive	2.03 (0.58)	1.98 (0.54)
Maladaptive†	2.20 (0.58)	2.02 (0.58)
Substance Use†	3.30 (0.87)	3.45 (0.85)
Social†	2.15 (0.60)	1.98 (0.54)
Total sample, N = 36,984		
Adaptive†	1.90 (0.50)	1.78 (0.48)
Maladaptive†	2.88 (0.59)	2.72 (0.61)
Substance Use†	3.83 (0.66)	3.92 (0.61)

\* For all coping factors, higher means are indicative of lower endorsement

†Indicates significant gender differences,  $p < 0.01$

coping, maladaptive coping, and substance use. There were significant interactions for maladaptive coping X gender and substance use X gender. These interactions indicated that (a) the increased use of maladaptive coping was associated with a steeper increase in distress for socially anxious males; and (b) increased substance use as a coping behaviour was associated with a steeper increase in distress for socially anxious females. See Table 5-6 for regression coefficients.

For the total sample, a second moderated regression was conducted following the same procedure as above. In the case of the total sample of respondents, there were only three coping factors as indicated by the previous principal components analysis. Therefore, to predict distress, gender, the three coping factors, and the three Coping X Gender interaction terms were entered into the regression. The overall model was significant, and there were significant main effects for gender, adaptive coping, maladaptive coping, and substance use. There were significant interactions for adaptive coping X gender and substance use X gender. These interactions indicated that (a) for females, the use of adaptive coping was associated with a steeper decline in distress scores than for males, and that (b) also for females, the increase in use of substances for coping was associated with a steeper increase in distress scores than for males. See Table 5.6 for regression coefficients.

Table 5-6

Regression Coefficients for the prediction of Psychological Distress

	Psychological Distress	
	B	SE
Socially anxious subset, n = 1180	F (9, 1170) = 49.13, p < .001	
Intercept	13.56	0.27
Sex	2.18	0.42
Adaptive Coping*†	3.86	0.50
Maladaptive Coping*†	-3.95	0.47
Substance Use*†	-2.09	0.33
Social Avoidance*†	-0.93	0.51
Sex X Adaptive Coping Interaction	-0.59	0.75
Sex X Maladaptive Coping Interaction	-1.45	0.73
Sex X Substance Use Interaction	0.98	0.48
Sex X Social Avoidance Interaction	-0.62	0.73
Total sample, n = 36061	F (7, 36053) = 2150.86*, p < .001	
Intercept	5.54	0.04
Sex	-0.22	0.05
Adaptive Coping*†	2.37	0.06
Maladaptive Coping*†	-3.91	0.07
Substance Use*†	-1.70	0.06
Sex X Adaptive Coping Interaction	-0.15	0.09
Sex X Maladaptive Coping Interaction	-0.83	0.10
Sex X Substance Use Interaction	0.21	0.08

\* Higher means are indicative of lower endorsement

† The means for these variables have been centered

#### 5.4 Discussion

The first objective of the current study was to examine stress and coping behaviour for individuals with current social anxiety disorder as compared to the total sample, as well as for gender differences within the social anxiety subset. These results indicated that the general stress and coping profile was different for socially anxious individuals. As predicted, individuals with social anxiety disorder reported different types of stressors, and had significantly lower mean coping self-efficacy as compared to the total sample. As for coping behaviours, the principal components analysis indicated that those with social anxiety employed similar types of coping behaviours, with the addition of social avoidance. As anticipated, there were gender differences within the social anxiety subset for coping behaviours and sources of stress. The second objective of this research was to determine the relative contribution of coping behaviours and possible gender interactions for distress, and it was hypothesized that coping behaviours would be predict distress and that there would be gender differences. This hypothesis was partially supported, as only some coping behaviours emerged as significant predictors; however, there were gender differences in the pattern of prediction

Coping self-efficacy. For the total sample of individuals with social anxiety disorders, coping self-efficacy emerged as a significant predictor of chronic distress. Specifically, as self-perceived ability to handle day-to-day demands increased, chronic distress decreased. Although there is a lack of research examining coping self-efficacy in

the context of social anxiety disorder, this variable is often examined in the contexts of trauma and health psychology. Within these frameworks, this type of self-efficacy is a protective factor against post-traumatic stress and more general distress (Bosmans, Benight, van der Knaap, Winkel, & van der Velden, 2013; Cieslak et al., 2008). An unanticipated finding was that for males with current social anxiety disorder, one of the significant predictors of chronic distress was the coping self-efficacy item “How would you rate your ability to handle unexpected and difficult problems...?”. The results of the regression indicated that as males’ perceived coping self-efficacy for unexpected problems increased, so did his level of chronic distress. It is possible that an individual’s belief that he can cope with unexpected problems requires him to actually deal with these unanticipated difficulties, causing him significant distress. This pattern of prediction for the unexpected problems variable was not found for females. Coping self-efficacy was assessed in the current study; however, social self-efficacy may have been a stronger predictor of distress in social anxiety disorder. Leary and Atherton (1986) defined self-presentational efficacy expectancy as the belief that one can convey a particular social impression. Research has indicated that there are significant positive associations between social self-efficacy and social anxiety (e.g., Gaudiano & Herbert, 2007; Kashdan & Roberts, 2004).

Coping behaviours. For socially anxious individuals, all four coping behaviour categories emerged as a significant predictor of distress; however, there were gender interactions such that socially anxious males who used maladaptive coping experienced a

steeper rise in distress scores. Females with social anxiety who used substances like alcohol and tobacco to cope had a steeper increase in distress than males .

Within the present study, coping behaviours were categorized as adaptive or maladaptive based on the results of the factor analysis. As indicated above, functional coping relieves anxiety and dysfunctional coping may reduce anxiety within the situation, but also results in long-term maintenance of the anxiety response. One of the challenges in the study of stress and coping is that it is somewhat difficult to generally categorize coping behaviours as dysfunctional as there is an idiosyncratic quality to whether a particular behaviour mitigates anxiety. For example, making a list of points to discuss prior to an important social interaction may be functional for some socially anxious individuals; however, if a person requires such a list for every single social contact, this may be characterized as dysfunctional.

With respect to frequency of using coping behaviours in the present research, there were some differences between the social anxiety subset and the total sample. Based on percentages of endorsement, the social anxiety subset endorsed using social avoidance, and maladaptive coping quite often. Additionally, they also endorsed using substances to cope often as well. These are foreseeable findings given the characteristics of social anxiety disorder and the high prevalence of comorbid depression. Within the social anxiety subset, females reported that they were significantly more likely use maladaptive coping and social avoidance than males, whereas the socially anxious males were more likely to report substance use as a coping behaviour than females. There was no gender difference for adaptive coping, which is surprising given the “tend and befriend” theory

of the female stress response, which proposes that when faced with stress, females engage in behaviour that promotes safety and stress reduction (tending) as well as maintaining social networks that may aid in the stress reduction process (befriending) (Taylor et al., 2000).

Sources of stress. Sources of stress for individuals with social anxiety disorder differed by gender in the present analysis. Females were more likely to report family concerns as a source of stress than males. This is not surprising given that females are often responsible for family management, and that females with social anxiety disorder are more likely to be single parents with children than males (MacKenzie & Fowler, 2013). Males with social anxiety disorder were significantly more likely to report that they felt stressed about work and discrimination than females.

Limitations. The findings of the present research must be interpreted in light of several limitations. First, psychological diagnoses in the CCHS were not assessed by clinicians; rather the questionnaire was conducted by trained interviewers. Therefore, it is difficult to ensure diagnostic accuracy, and thus the accuracy of the conclusions that have been drawn. Second, these data was collected in 2002, so it may differ from more recent data of this nature. Third, some of the variables included in these analyses consist of only one or two items, such as coping self-efficacy, which may impact construct validity. Finally, these data contribute to a large literature of survey-based data, which prevents the examination of causal variables. Unfortunately, costs for longitudinal or experimental data at a scale similar to that used in the present research are prohibitive.

Conclusions. To our knowledge, this is the first study to explore stress and coping for Canadians with social anxiety disorder using a large nationally representative sample, and the findings have several clinical implications. Coping self-efficacy was associated with lower distress scores, therefore increasing a patient's belief that he/she is capable of dealing with day-to-day demands may also serve to alleviate distress. Previous research has indicated that positive social interactions provide a psychological buffer against stress (see Cohen & Wills, 1985); however, the results in the present study indicate that coping self-efficacy and some coping behaviours are stronger predictors of reduced distress than indices of social support. Taking a person's social support network into account is certainly important in a therapeutic context, but increasing coping self-efficacy and teaching functional coping behaviours should also be addressed. This study has also provided information about additional stressors that these individuals have in their lives beyond their psychopathology, which should be taken into account when determining quality of life. Finally, these results provide normative data for the ways in which socially anxious individuals attempt to handle their distress, namely that males increase their alcohol intake, and females talk to others, eat more or less than usual, and pray or seek spiritual help. These coping behaviours can be functionally analyzed to determine whether they are reducing anxiety, and then encouraged or discouraged in the course of treatment.



## Chapter 6: General Discussion

This series of studies has given an account of determinants of health and well-being for individuals with social anxiety disorder to provide a multidimensional profile of their subjective quality of life. Obtaining such a profile is necessary in order to fully grasp the factors that contribute to the well-being of individuals already dealing with a psychiatric disorder, such as social anxiety. Once researchers and practitioners are made aware of the myriad contributors to well-being, these elements can be addressed in a therapeutic context. Over the course of the three preceding studies examining data from the CCHS, the following conclusions emerged: (1) Canadians with lifetime social anxiety disorder are more marginalized with respect to sociodemographic factors than those without social anxiety disorder, and this is particularly true for socially anxious females. (2) Canadians with current social anxiety disorder experience significant social impairment and there are gender differences with respect to the amount of perceived social support available. (3) Canadians with current social anxiety have specific stressors and cope with their stress differently than those without social anxiety disorder. Although more research is needed to provide a comprehensive list of all determinants of mental health and well-being for those with social anxiety disorder, this research culminates to provide a negative depiction of the lives of people with this disorder, namely that they have many other difficulties in their lives beyond that of their anxiety.

Psychological well-being. As mentioned in the general introduction, quality of life is composed of several elements categorized as psychological, occupational, social, and physical. A great deal of literature exists documenting the psychological elements of

well-being for social anxiety disorder, and this research is no exception. The present research indicated that individuals with social anxiety disorder have high levels of comorbid depression, and rate their mental health status and subjective quality of life as lower than individuals without the disorder. Additionally, females with social anxiety disorder reported lower ratings of mental health and higher ratings of stress than males. More importantly, the results of the present series of studies provide information about the domains of life that contribute to well-being for individuals with social anxiety disorder and are underrepresented in the clinical literature.

Occupational well-being. In the occupational domain, the results of Study 1 showed that social anxiety disorder is associated with educational impairment, being unemployed or underemployed, and having a low income. These findings were particularly true for socially anxious females, who had even lower ratings on the above variables than males. The present research identified the presence of chronic stressors usually seen in populations with low socioeconomic status. These stressors affecting the socially anxious population, such as poverty, unemployment, and job stress have been linked to adverse physical and psychological outcomes, such as distress, heart disease, and most cancers (Adler et al., 1994; Adler, Boyce, Chesney, Folkman, & Syme, 1993; Marmot, 1998).

Social well-being. As for the social domain, it is well documented that individuals with social anxiety experience significant social impairment. This was supported by the present research, although there were some pertinent gender differences. As indicated in Study 1, the respondents with social anxiety disorder were less likely to be married and

more likely to live alone. Both males and females reported a low number of close friends and family members, and low sense of community belonging. Females with social anxiety disorder were more likely than males to be single parents with one or more children.

While these low quantities of social relationships are intuitive when considering individuals with social anxiety disorder, this research provides empirical support to strengthen the statement that social anxiety disorder is associated with significant social impairment. The finding that females with social anxiety are more likely to be single parents has not been identified or fully explored in published research. There have been many studies detailing the negative aspects of being a single mother, such as a lack of social support and economic stress (e.g., Brandwein, Brown, & Fox, 1974). As a child growing up in such an environment who may have inherited a genetic diathesis for anxiety, it is likely that the unpredictability of such as stressful home affects their social and emotional development and possibly facilitates the transmission of anxiety or mood disorders (see theory of triple vulnerability; Barlow, 2000). Males with social anxiety disorder in the present research reported lower overall levels of social support than females; however, social support was not a significant predictor of distress. It may be the case that social roles and socialization experiences affect the perception of social support for males (Matud, Ibáñez, Bethencourt, Marrero, & Carballeira, 2003). For females with social anxiety disorder in this research, social support was a predictor of chronic distress such that a reduction in distress was associated with increases in positive social interactions. This finding is in line with Nolen-Hoeksema's many discussions of females having an interpersonal oriented self-concept, a tendency which is related to anxiety,

distress, and depression (Nolen-Hoeksema & Aldao, 2011; Nolen-Hoeksema, 2001, 2012).

Physical well-being. With respect to physical health, the present study examined stress and coping, variables which can have significant physical health correlates. Socially anxious respondents in this research in Studies 1 and 2 reported higher overall levels of self-perceived stress and chronic distress than non-socially anxious respondents. This in itself can have deleterious effects on physical and psychological health and well-being (e.g., DeLongis, Folkman, & Lazarus, 1988). Study 3 provided more in-depth information about stress and coping and indicated that the social anxiety sample had lower ratings of coping self-efficacy than non-socially anxious respondents, another variable that can have a significant impact on physical health and quality of life (e.g., O'Leary, 1985). Moreover, Study 3 indicated that males with social anxiety disorder were more stressed about work and discrimination, whereas females with social anxiety disorder reported higher overall levels of stress, that their most important sources of stress are their children and families. These findings support those that have been reported in the literature for nonclinical populations (Matud, 2004), and should be considered with the evidence that females may be more physiologically responsive to stress than males (Schmaus, Laubmeier, Boquiren, Herzer, & Zakowski, 2008).

Taken together, the above findings culminate in the overall conclusion that while all individuals with social anxiety disorder have significant issues in multiple life domains, females with social anxiety disorder may experience greater challenges than males. It is likely that they have significant economic struggles, as well as feeling the

effects of low social support more keenly, and experience a greater amount of stress. Each of these challenges are significant predictors of physical and psychological health as well as overall well-being. Future research in this area should continue to examine factors which contribute to females' wellbeing, and work towards addressing their needs.

**Limitations.** Despite the limitation that these data used in this research was collected in 2002, the present project was the first to provide quality of life benchmarks for Canadians with social anxiety disorder. Statistics Canada has collected more recent mental health data in 2012; however it has not yet been made publicly available (InfoStats, personal communication, June 27, 2013). The 2012 CCHS collection includes many variables not seen in the 2002 version. For example, the 2012 cycle includes a questionnaire assessing positive mental health, which may be a valuable source of information for quality of life and well-being. There is also a module which asks respondents about negative social interactions, which would provide more detail about their social interactions. Similarly, the 2012 cycle asks respondents to indicate their sexual orientation. This variable could begin an interesting line of study into the nature of social support for individuals with varying sexual preferences. In sum, the 2012 CCHS cycle provides data for a rich and meaningful program of future research into the nature of the lives of socially anxious individuals. An additional limitation of the present research is that gender comparisons in the total sample were not conducted. These analyses could serve to demonstrate whether the same pattern of gender differences held for a non-socially anxious sample; however, they are not central to the main purpose of this line of research, namely to provide a detailed profile of Canadians with social anxiety

disorder. A great deal of literature detailing the differences between males and females in socioeconomic variables, social support variables, and coping variables presently exists (e.g., Cherepanov, Palta, Fryback, & Robert, 2010; Day & Livingstone, 2003; McDonough & Walters, 2001). Nevertheless, comparing gender differences in these types of variables in both socially anxious and non-socially anxious samples is a possible avenue for future research.

Conclusions. In general, therefore, it seems that using a health or social-based psychological paradigm when viewing psychiatric illness provides a more well-rounded representation of social anxiety disorder, and provides insight into quality of life and subjective well-being. There is no question that external factors, such as social context, and internal factors, such as coping abilities, influence our mental health, yet these are often overlooked in the clinical psychology literature. This research has supported the use of an integrated perspective in order to obtain a more complete understanding of what contributes to distress and well-being in the lives of individuals with social anxiety disorder. The evidence from these studies suggests that practitioners and researchers providing assistance to a socially anxious population must look beyond symptom and distress inventories and instead reflect on the multiple factors that can contribute to a patient's subjective sense of well-being, especially for females. As researchers especially, it can be difficult to remember that these socially anxious patients and participants are not merely a collection of maladaptive cognitions, rather they are men and women who don't always have enough money, who don't always have someone to talk to about their

problems, who are stressed about their work and their families, and who also have some interpersonal fears.

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## Appendix 1



Interdisciplinary Committee on  
Ethics in Human Research (ICEHR)

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Tel: (709) 536-6100 Ext. 3033, 3112 or 3117  
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ICEHR Number:	2012-317-SC
Approval Period:	May 4, 2012 - May 31, 2013
Funding Source:	
Responsible Faculty:	Dr. Ken Towler
Title of Project:	Department of Psychology, Faculty of Science <i>Social anxiety and social support reciprocity</i>

May 4, 2012

Ms. Megan MacKenzie  
Department of Psychology  
Faculty of Science  
Memorial University of Newfoundland

Dear Ms. MacKenzie:

Thank you for your email correspondence of April 25, 2012 addressing the issues raised by the Interdisciplinary Committee on Ethics in Human Research (ICEHR) concerning the above-named research project.

The ICEHR has re-examined the proposal with the justifications and revisions submitted and is appreciative of the thoroughness and clarity with which you have responded to the concerns raised by the Committee. In accordance with the *Tri-Council Policy Statement on Ethical Conduct for Research Involving Humans* (TCPS2), the project has been granted *full ethics clearance* to May 31, 2013.

If you intend to make changes during the course of the project which may give rise to ethical concerns, please forward a description of these changes to Theresa Heath at [icehr@mun.ca](mailto:icehr@mun.ca) for the Committee's consideration.

The TCPS2 requires that you submit an annual status report on your project to the ICEHR, should the research carry on beyond May 31, 2013. Also to comply with the TCPS2, please notify us upon completion of your project.

We wish you success with your research

Yours sincerely,

Chail Wideman, Ph.D.  
Vice-Chair, Interdisciplinary Committee on  
Ethics in Human Research

GW:eb

copy: Supervisor: Dr. K. Towler, Department of Psychology