

Running Head: QUALITY OF RELATIONSHIPS

Quality of Relationships in Social Anxiety Disorder, Generalized Anxiety Disorder, and Major
Depressive Disorder: Findings from a Nationally Representative Sample

by

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Abstract

Research indicates that without healthy and close relationships, well-being and functioning suffer. Despite this knowledge, quality of relationships has not been emphasized in the mental health literature, especially as related to social anxiety disorder (SAD) where social support needs may be higher. The aim of this study was to examine how those with SAD compared to those with another anxiety disorder (generalized anxiety disorder; GAD), a mood disorder (major depressive disorder; MDD) and those with no recent history of disorder, on measures of quality of relationships with family, friends and partners, as well as on intimacy and role functioning. Data were drawn from the National Comorbidity Survey Replication (NCS-R; Kessler et al., 2004), a large, U.S. nationally-representative epidemiological data set. Logistic regressions were used to examine the quality of relationships for those with SAD as compared to GAD, MDD and no disorder. The associations among relationship quality and high versus low severity of SAD were also examined. It was found that those with SAD were less likely to report high family and friend support than were those with no disorder, but more likely to report high marital support than those with GAD or MDD. Those with SAD were more likely to report high family stress than those with no disorder, but no more likely to report relationship stress than were the other clinical groups. With respect to severity of SAD, those with high SAD severity were more likely to report high friendship stress than those with low SAD severity. In examining role impairment, those with SAD were less likely to report social impairment than those with GAD or MDD, and less likely to report close relationship impairment than those with MDD. Those with high SAD severity reported higher impairment across social and close relationship functioning compared to those with low severity. This study redresses many of the limitations in the current literature, and the results inform future research efforts on treatment practices and prevention.

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Dedication

As a testament to healthy, strong, meaningful relationships, this work is lovingly dedicated to my husband, Stephen Gomori, and to our amazing daughters, Elise and Laurel. I thank you for gracefully accepting and managing my numerous early morning (and day-long) absences while I completed this dissertation. Your support, encouragement and excitement for me while I finished my "book" made desperately missing you those many days away a tiny bit easier. I look forward to spending each and every evening and weekend with you until you completely tire of my company!

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Quality of Relationships in Social Anxiety Disorder, Generalized Anxiety Disorder, and Major Depressive Disorder: Findings From a Nationally Representative Sample

Social scientists and theorists studying human relationships have long been interested in the impact of the quality of relationships on health and mental health (Kendler & Prescott, 2006). One outgrowth of this interest has been the development of interpersonal theory (Alden & Taylor, 2004; Sullivan, 1996). In interpersonal theory, it is argued that we define ourselves in terms of our relationships, and that without healthy and close relationships in our lives, our well-being and functioning suffer. Human beings are indeed relational creatures by nature and require healthy social relationships to flourish (Cacioppo, Fowler & Christakis, 2009). On average, people spend about 80 percent of their waking hours in the company of others, and most prefer this to time spent alone (Emler, 1994; Kahneman, Krueger, Schkade, Schwarz, & Stone, 2004). Gottlieb (1994) investigated the domains in life to which people tended to attach the greatest importance and satisfaction. People generally ranked social relationships very highly and reported increased risk for adverse physical and mental health conditions in response to the loss of significant attachments (Cohen, 2004).

Social isolation has been consistently associated with a lower subjective sense of well-being (Berscheid, 1985; Myers & Diener, 1995) and thus, when social relationships are impaired, overall functioning will suffer. The inverse is also true: the literature generally supports the link between psychopathology and impaired social and general functioning (e.g., Rhodes & Lakey, 1999). This cyclical relationship is often self-perpetuating in that poor social functioning can lead to psychopathology and exacerbate pre-existing conditions, culminating in further

impairment in social and general functioning.

Social Support and Health

Interest in the nature of human social relationships and their influence on health has long been a topic of research in the mental health field, as well as in sociology, social psychology and public health (Kendler & Prescott, 2006). Social support can be defined in a number of ways. It has been defined broadly, as the degree of caring and sustenance an individual receives from the social environment (Kendler & Prescott, 2006). More specifically, it refers to the psychological, informational and material resources provided within one's social network with the aim of optimizing management of adversity (Cohen, 2004).

The associations between social support and health have been extensively researched and links between various forms of support and mental (e.g., Galea, Vlahov, Tracy, Hoover, Resnick, & Kilpatrick, 2004, Mulvaney-Day, Alegria, & Sribney, 2007; Rhodes & Lakey, 1999) and physical health (e.g., Finch & Vega, 2003; Uchino, Cacioppo, & Kiecolt-Glaser, 1996) have been well established. The structure of social networks (Brissette, Cohen, & Seeman, 2000), the support received from others (Berkman, 1995; Berkman & Syme, 1979; Cohen, Gottlieb, & Underwood, 2000; House, Landis, & Umberson, 1988), and the quality and quantity of social interactions (Kiecolt-Glaser & Newton, 2001) have been found to be protective against poor physical and mental health. Social networks help people regulate their health-related lifestyle behaviours (e.g., with respect to diet, exercise, smoking and substance use) and provide opportunities for social involvement in affiliative activities such as religious groups or team sports (Cohen, 2004). Social support has also been found to provide a buffer against the negative health effects of life stress (Sarason, Sarason, Potter, & Antoni, 1985). Despite the protective benefits derived from social support, developing and maintaining quality relationships and

support are often not a focus when treating those with Social Anxiety Disorder (SAD; Alden & Taylor, 2011; Rodebaugh, Holaway & Heimburg 2004).

Conversely, with social ties come opportunities for conflict, exploitation, stress, and experiences of social losses and loneliness (Cohen, 2004). Feelings of isolation and loneliness have been identified as predictors of poorer health and wellbeing (Cacioppo, Fowler, & Christakis, 2009; Cohen, 1988; House, Landis, & Umberson, 1988). The negative aspects of social relationships can cause psychological stress and result in cognitive, affective, and biological responses that increase risk for poor health (Cohen, 2004; Cohen et al., 1998). Thus, it is important to investigate both positive and negative aspects of relationships when examining links between relationships and health. This may be especially relevant for those with SAD given the possibility of difficulties in social relationships.

Despite the knowledge that relationships, and the social support that arises from them, are pivotal in terms of overall mental and physical health, relationship development and maintenance have not been emphasized in the mental health literature overall. More specifically, they have not received adequate attention in the area of social anxiety disorder (SAD), a condition where social relationships may be greatly affected. Even in the diagnostic criteria for SAD in the current Diagnostic and Statistical Manual of Mental Disorders (DSM 5; American Psychiatric Association [APA], 2013), relationships only receive brief mention as one *potential* aspect of the diagnostic criterion of significant role impairment.

Purpose of this Study

The purpose of this study was to examine the associations between psychiatric disorders and social relationships in a representative epidemiological sample. Specifically, perceived quality of different types of social relationships (family, friends and romantic partners), as well

as degree of role impairment of those respondents with SAD were compared to those with another anxiety disorder (GAD), those with a mood disorder (major depressive disorder; MDD), and controls (no 12 month history of disorder). GAD and MDD were chosen as comparison groups specifically given important similarities with SAD in terms of their potential for early onset and long-term course (APA, 2013). This study sought to redress the limitations in the existing literature with the aim to inform and improve our understanding of the social relationships of those with SAD, GAD and MDD and to inform research on treatment practices, early intervention and prevention of anxiety and mood disorders.

As an example, there has been some research on the relationship between social anxiety (as a dimensional construct) and the quality of social relationships in the fields of social and developmental psychology (e.g., Greco & Morris, 2005; La Greca & Lopez, 1998). These studies have been very helpful but there has been very limited research on these relationships after adolescence. This matter has received some attention from clinical researchers studying social anxiety disorder and other mood and anxiety disorders (e.g., Bech & Angst, 1996; Beidel, Turner, & Morris, 1999; Torgrud, Walker, Murray, Cox, Chartier, & Kjernisted, 2004). Data from clinical populations may provide different information from that gathered from samples in the community because those who seek clinical attention may differ in systematic ways from those who do not seek clinical attention. For example, those with SAD are more likely to present for treatment if they also develop comorbid disorders such as major depression (Wittchen & Fehm, 2001).

Despite the promising research in these areas, there are important limitations in the literature that need to be addressed. Although valuable, the research that considers social anxiety as a dimensional construct in adult and child populations does not provide the diagnostic

information that is the focus of clinical work. In other studies, little information about social support and relationships is provided, the quality of relationships is not examined in multiple types of relationships (family vs. friends vs. intimate), or a *no disorder* comparison group is lacking. There are only a few epidemiological studies that address this question, but these studies generally provide very limited information about social relationships. While there is a more extensive social science literature concerning romantic relationships (e.g., Alden & Taylor, 2004; Cuming & Rapee, 2009; Darcy, Davila, & Beck, 2005; Davila & Beck, 2002; Holt-Lunstad, Birmingham & Jones, 2008) much less is known about relationships with family members and with friends (Fehr, 1996). Better information in this area will inform further work on treatment, early intervention, and prevention.

Considering the problem developmentally, patterns of relating to family, friends, and romantic partners are often established early in life. At present there is little or no emphasis on relational development or repair of social ties in the treatment for those with SAD (among other disorders). In fact, I could identify only one study to date examining how clinicians might assist patients in relationship improvement and development (Alden & Taylor, 2011). While much of the developmental literature focuses on social anxiety, there are similar issues around the quality of relationships with persons with other anxiety disorders and MDD (Segrin & Dillard, 1992).

Social Anxiety Disorder (SAD)

Epidemiological research in Canada suggests that in 2002, just over two million Canadians over the age of 15 (8%) had a lifetime history of social anxiety disorder and approximately 750,000 (3%) had the disorder within the last 12 months (Shields, 2004). Although people with SAD differ with respect to the number and content of social fears, the degree of impairment, age of onset, sociodemographics, life satisfaction, social skills and self-

esteem (e.g., Boone et al., 1999; Eng, Heimberg, Coles, Schneier, & Liebowitz, 2000; Heimberg, Holt, Schneier, & Spitzer, 1993; Hofmann, Heinrichs, & Moscovitch, 2004; Kessler, Stein, & Berglund, 1998; Mannuzza et al., 1995; Stemberger, Turner, Beidel, & Calhoun, 1995) there are several common features as well.

Definitions and diagnostic criteria. Social anxiety disorder is often found in epidemiological studies to be the most common of the anxiety disorders (Segrin, 2001b; Stein, 2006), and the second most prevalent of all disorders (Kessler, Chiu, Demler, & Walters, 2005). It is relatively new to the diagnostic nomenclature, as it was only added to the DSM-III in 1980 (Segrin, 2001b). Even in 1985 it was still considered a neglected disorder (Liebowitz, Gorman, Fyer, & Klein, 1985). Since then, SAD has received a considerable amount of research attention, and significant progress has been made in understanding its origin and impact (Torgrud et al., 2004); however, gaps in the literature remain.

According to the Diagnostic and Statistical Manual of Mental Disorders (DSM-5; APA, 2013), SAD is characterized by a marked and persistent fear of one or more social situations in which the individual is concerned about possible scrutiny by others. The person fears he or she will act in a way that will be embarrassing, or will show anxiety symptoms that will be judged negatively by others, or will offend others. Exposure to the feared social situation(s) typically provokes fear or anxiety, which tends to be disproportionate to the actual threat posed by the social situation. Nonetheless, feared situations are avoided or endured with intense anxiety.

To warrant a diagnosis of social anxiety disorder, the fear, anxiety, or avoidance must cause clinically significant impairment or distress with the person's usual level of functioning (e.g., social, occupational, or other important areas of functioning). The fear or avoidance must not be better accounted for by the physiological effects of a substance, or by a general medical

condition or another psychiatric disorder (e.g., panic disorder, body dysmorphic disorder, or autism spectrum disorder). If the fear is restricted to speaking or performing in public, the "Performance only" specifier is noted. In the DSM-5, the interpersonal aspects of the diagnosis receive some attention. APA (2013) notes that social anxiety disorder is associated with being single, unmarried, or divorced and with not having children (Fehm et al., 2008), particularly among men. Individuals with SAD are also noted as living at home longer (APA, 2013).

Age of onset for social anxiety disorder is typically in early-adolescence, with 75% having an age of onset between 8 and 15 years of age. SAD sometimes originates in an early childhood history of social inhibition or shyness (APA, 2013). Onset may follow a humiliating experience, or it may be insidious. The course of SAD is often continuous, and duration tends to be life-long. Shields (2004) found, using the Canadian Community Health Survey, Cycle 1.2 (CCHS 1.2), that the average duration of symptoms for those with a lifetime history of the disorder was 20 years. Even this was considered an underestimate given many respondents reported still experiencing symptoms at the time of data collection and were in the younger age range. Symptoms may lessen or remit during adulthood. Severity of impairment often fluctuates in response to life stressors and situational demands. For example, a promotion to an employment position that requires public speaking may result in the emergence or exacerbation of social anxiety disorder in someone who previously was not required to speak in public (APA, 2013).

SAD and relationship functioning. SAD is one instance wherein the interplay between psychopathology and social relationships appears particularly salient given the nature of impairment is, by definition, socially-oriented. For instance, SAD is characterized by avoidance of social interactions and sensitivity to negative evaluation and thus potentially the greatest impact of the disorder is in the area of social relationships (Alden & Taylor, 2004; Hudson &

Rapee, 2000; Torgrud, Walker, Murray, Cox, Chartier, & Kjernisted, 2004). As a result, individuals with SAD may be at increased risk for the poor mental and physical health outcomes with which low social support is associated. Despite several developments in the research on social anxiety disorder, relatively little attention has been paid to the relationship between social anxiety and the construct of social support until recently (Torgrud et al., 2004). More specifically, while some evidence suggests that social anxiety disorder is associated with interpersonal impairment, (e.g., Ruscio, Brown, Chiu, Sareen, Stein, & Kessler, 2008) how social anxiety disorder influences specific types of relationships is less understood and warrants detailed examination (Rodebaugh, 2009).

SAD and role impairment. People diagnosed with SAD often experience severe interference in many areas of life, in addition to impairment in the interpersonal domain (Heimberg, Holt, Schneier, Spitzer, & Liebowitz, 1993; Van Ameringen, Mancini, & Streiner, 1993; Wittchen, Stein, & Kessler, 1999). SAD has been associated with lower educational achievement, being unemployed, having many days out of role, having lower income, having higher financial dependency, poorer mental health due to comorbid disorders, more suicidal thoughts, single marital status, poorer overall health, greater number of consultations with doctors and poorer health-related quality of life (Acarturk, de Graaf, van Straten, ten Have, & Cuijpers, 2008; Furmark, Tillfors, Everz, Marteinsdottir, Gefvert, & Fredrikson, 1999; Heimberg & Becker, 2002; Kessler, 2003; Ruscio, Brown, Chiu, Sareen, Stein, & Kessler, 2008; Stein & Kean, 2000; Stein & Stein, 2008; Wittchen & Fehm, 2001). Previous researchers (e.g., Ruscio et al., 2008; Stein, Torgrud, & Walker, 2000) have found a dose–response relationship between number of social fears and degree of functional impairment.

Origins of social anxiety. As with most psychiatric disorders, SAD likely has a variety of causal influences (Davidson, 2000) with several factors that contribute to its onset and maintenance. Some of these factors include genetic influences, temperament (e.g., behavioural inhibition), family environment, childhood adversity and maltreatment, and social skills (see Figure 1). A brief discussion of some of these areas will be presented here.

Genetic influences. Considerable research exists to suggest a heritable contribution to social anxiety disorder (Hudson & Rapee, 2000). Several family studies have found social anxiety disorder aggregates in families more systematically than would be expected by chance (e.g., Fyer et al., 1993; Kendler, Myers, Prescott, & Neale, 2001; Lieb, Wittchen, Hofler, Fuetsch, Stein, & Merikangas, 2000). Some of these studies have estimated that first-degree relatives of adults with SAD are three times as likely as relatives of controls to be affected with SAD (Fyer, Mannuzza, Chapman, Liebowitz, & Klein, 1993; Fyer, Mannuzza, Chapman, Martin, & Klein, 1995; Mannuzza et al 1995; Reich & Yates, 1988). Twin studies, which examine genetic factors separate from environmental factors, have consistently found higher rates of social anxiety disorder in relatives of social anxiety probands (Fyer et al., 1995; Kendler, Neale, Kessler, Heath & Eaves, 1992). These studies suggest that SAD has moderate heritability; however, it is not yet clear whether these factors predispose to SAD specifically, or more so facilitate a general predisposition to anxiety, or a nonspecific proneness to internalizing disorders such as anxiety and depression (Ollendick & Hirshfeld-Becker, 2002). Given heritability is in the moderate range, environmental influences are at play as well.

Behavioural inhibition (BI). Originally characterized by Kagan, Reznick and Snidman (1988), BI represents an enduring tendency found in 10–15% of white American children to demonstrate fear, avoidance, or reticence when presented with unfamiliar situations, objects, or

people. The behaviourally inhibited temperamental style is characterized by withdrawal, wariness, avoidance, shyness, and heightened physiological arousal in novel situations (Kagan, Reznick, & Snidman, 1988; Reznick, Kagan, Snidman, Gersten, Baak, & Rosenberg, 1986). Behavioural inhibition is thought to reflect an enhanced anxiety proneness of familial origin and has been found to be associated with the onset of SAD. It has an age of onset as early as four months of age, although only a small proportion of behaviourally inhibited children remain so past childhood (Kagan, Snidman, & Arcus, 1993). Inhibited children have been described as more irritable as infants, more fearful, more aloof in social groups and more introverted and cautious in school (Kagan et al., 1993). This temperamental style has been associated with negative affect such as fear and anxiety, as well as the personality trait introversion (Kagan et al., 1993). Twin studies (DiLalla, Kagan, & Reznick, 1994; Matheny, 1989; Robinson, Kagan, Reznick, & Corley, 1992) support a genetic contribution to behavioural inhibition. Family studies have also found increased rates of current social anxiety disorder and a past history of childhood anxiety disorders in parents of behaviourally inhibited children as compared to parents whose children are not behaviourally inhibited and controls (Rosenbaum, Biederman, Bolduc, Faraone, Hirshfeld, & Kagan, 1992; Rosenbaum, Biederman, Hirshfeld, Bolduc, Faraone, Kagan, Snidman, & Reznick, 1991). Turner, Beidel and Wolff (1996) point out, however, that behavioural inhibition is not the only relevant factor in the development of anxiety disorders since uninhibited children also go on to develop anxiety disorders later in life.

Parenting styles. Family environment can also affect the likelihood of developing social anxiety, over and above genetic diathesis (Hudson & Rapee, 2000). The association is at least, in part, genetic; however, literature has shown that parents with psychopathology exert other influence in the transfer of social anxiety from one generation to the next. In addition to the

established link between childhood physical and sexual abuse to the risk of SAD (e.g., David, Giron, & Mellman, 1995; Stein et al., 1996) family of origin can contribute to the onset of SAD through parental modelling, isolation from social situations, and child rearing styles (Hudson & Rapee, 2000). Parents with an anxious predisposition may inadvertently model fearful behaviour to their children, conveying expectations of negative evaluation in the social context (Ollendick & Hirshfeld-Becker, 2002). They may also facilitate fewer opportunities for their children to engage socially, and thus to learn social skills and have positive social experiences that lead to a positive view of the social world.

Overprotective or emotionally neglectful parental behaviour has been shown to increase the risk of social anxiety disorder (Beidel & Turner, 1998; Bruch & Heimberg, 1994; Gibb, Butler, & Beck, 2003; Gibb, Chelminski, & Zimmerman, 2007; Hudson & Rapee, 2000; Spinhoven et al., 2010). Parental overprotection can communicate to a child that the world is unsafe and the child is not equipped to cope (Hudson & Rapee, 2000). Those who have punitive parents may learn to fear social situations for fear of negative evaluation. In addition, they may not be securely bonded to their caregivers and thus may learn that relationships are unsafe and unstable.

Although there is literature to support the link between parental factors and childhood anxiety, a meta-analysis by McLeod and colleagues (2007) calls the salience of the aspect of overprotective or punitive parenting style into question. McLeod and colleagues (2007) conducted a meta-analysis of studies published up until 2004 in order to clarify the nature and strength of associations between parenting and childhood anxiety. They found that only four percent of the variance in childhood anxiety was accounted for by parenting. Based on moderator analyses, they asserted that three methodological factors explained much of the heterogeneity of

the effects in the literature. In their meta-analysis, stronger effects emerged for studies comparing diagnosed and non-diagnosed youth, for those using observer ratings of parenting (rather than child- or parent-report), and those studies with observational methods rather than measurement of parenting practices via interview or questionnaire. In addition, the dimension of parental control had a stronger association with childhood anxiety than did parental rejection. When subdimensions of control and rejection were examined, lower levels of autonomy-granting was more strongly associated with childhood anxiety than were the other parenting subdimensions including over-involvement, aversiveness, withdrawal and lack of warmth. However, as the authors also note, the presence of aversiveness and withdrawal may be more strongly associated with anxiety than the absence of more positive parenting practices such as warmth. So while blatant adversity has a clear link to anxiety, parenting style may be less influential than previously thought.

Childhood adversity. Given the relatively early onset of SAD, research interest in the link between childhood adversity and the diagnosis of social anxiety disorder is especially important (Chartier, Walker, & Stein, 2001; Simon et al., 2009). Childhood abuse histories among patients with anxiety disorders have been examined in many clinical studies. David and colleagues (1995) found rates of childhood abuse were much higher (63%) among those diagnosed with panic disorder, agoraphobia, and/or social phobia compared to a nonclinical group with no psychopathology (24%), with abuse history most pronounced among patients with social phobia. Simon and colleagues (2009) examined the association between childhood maltreatment (physical, sexual, and emotional abuse and neglect) and the generalized subtype of SAD in a sample of 103 treatment-seeking individuals. They found history of childhood

maltreatment was associated with greater SAD symptom severity, and poorer functioning, resilience, and quality of life.

In their epidemiological study, Cogle and colleagues (2010) examined the relationship between anxiety disorders and childhood physical and sexual abuse using data from the National Comorbidity Survey-Replication. Data on childhood abuse history, lifetime psychiatric history, parental anxiety, and demographics were gathered from 4,141 respondents in structured interviews. After controlling for depression, other anxiety disorders, other childhood adversities, parental pathology, and demographic variables, a unique relationship was found between childhood sexual abuse and SAD. Physical abuse was only associated with PTSD and specific phobia in this study. When associations were examined specific to gender, sexual abuse was found to be associated with SAD in women, while physical abuse was not. Among men, both sexual and physical abuse were uniquely associated with SAD.

In a Canadian epidemiological study, Chartier, Walker and Stein (2001) examined the association between childhood risk factors and social anxiety disorder in 8,116 respondents to the Mental Health Supplement of the Ontario Health Survey. They found a positive relationship between social anxiety disorder and several childhood risk factors, including the lack of a close relationship with an adult, not being first born (in males only), marital conflict in the family of origin, parental history of mental disorder, moving more than three times as a child, juvenile justice and child welfare involvement, running away from home, childhood physical and sexual abuse, failing a grade, requirement of special education before age nine, and dropping out of high school. Many of these variables remained significant after controlling for agoraphobia, simple phobias, major depressive disorder and alcohol abuse.

There are several mechanisms by which childhood abuse might contribute to the onset of social anxiety disorder. Individuals who have experienced abuse may develop the beliefs that the world is a dangerous place and that they have little control over what happens to them, both of which are important elements in the development of anxiety disorders (Barlow, 2002).

Childhood abuse may also serve to sensitize victims to the effects of subsequent traumatic exposure (Breslau, Chilcoat, Kessler, & Davis, 1999). Abuse may lead to anxiety sensitivity, which has been found to increase in response to stress (Schmidt, Lerew, & Joiner, 2000) and which has been linked to several anxiety disorders (Taylor, Koch, & McNally, 1992).

Social skills. People with SAD have often been found to have social skill deficits (Schroeder, 1995). This may be biological in origin, or related to early family experiences such as a lack of exposure to social learning experiences, or a combination thereof, as discussed above. Regardless, people with poor social skills often learn to anticipate negative outcomes from social exchanges and thus learn to fear and avoid social situations. In addition, if people avoid social interaction, any skills they do possess will weaken from disuse, perpetuating the cycle. Relationship initiation and maintenance skills are likely affected in those who are anxious from a young age (Shields, 2004), and those individuals may fail to learn such skills due to lack of social exposure. They may also have limited social contact as a result of a lack of these skills at the outset.

Results from research driven by interpersonal theory suggest that social skill deficits lead to social rejection. Papsdorf and Alden (1997, as cited in Alden & Bieling, 1998) found that even though people with SAD are often relatively non-threatening and pleasing as compared to nonanxious people, they were often rejected by peers. The authors posited this was due to the social partners in the study feeling anxious individuals to be markedly different from them.

Interpersonal rejection may play a directly causal role in social anxiety disorder. Spence and colleagues (1999) explain that children with poor social skills who experience social rejection internalise negative expectations about social interactions and learn to fear and avoid such situations, thereby eliminating future opportunities to enhance their social skills through practice.

Further, some research has shown that individuals with higher social anxiety tend to volunteer little personal information and what they do relay tends to be less revealing (Alden & Bieling, 1998; DePaulo, Epstein, & Steele LeMay, 1990; Reno & Kenny, 1992). This tends to interfere with the development of close relationships. This may be borne out of a deficit in awareness about how to convey personal information about oneself (Segrin & Flora, 2000). More likely though, people with social anxiety disorder may strategically adopt a communication style that is low in self-disclosure in order to avoid negative social outcomes and disapproval (Alden & Bieling, 1998; Arkin, Lake, & Baumgardner, 1986; Clark & Wells, 1995; Meleshko & Alden, 1993; Rapee & Heimberg, 1997). Evidence from self-report and laboratory-based investigations suggests that socially anxious individuals maintain a passive interpersonal stance characterized by submissive, inhibited behaviour (Creed & Funder, 1998; Leary, Knight, & Johnson, 1987; Oakman, Gifford, & Chlebowsky, 2003).

Much of the research supporting this tendency has examined interactions between participants and 'strangers,' typically confederates or other research participants. However, Cuming and Rapee (2009) examined interactions in closer relationships, since these relationships would be expected to have a lower likelihood of negative evaluation, and found a gender-specific result: social anxiety was associated with a lack of disclosure in both romantic relationships and close friendships in females, but not in males. It may be that, for women especially, self-protection is even more important in close relationships since these relationships may be

perceived to have the highest stakes (Hendrick, 1981). Self-disclosure is a necessary component of the process by which strangers become acquaintances and then close friends or lovers (Kashdan, McKnight, Fincham, & Rose, 2011; Kashdan, Ferssizidis et al., 2013). As such, a self-protective communication style would be expected to exert a negative influence over the frequency or quantity of close relationships that socially anxious individuals are able to establish.

Finally, people with social anxiety often appear to miss some of the subtle and the not-so-subtle nuances in verbal (e.g., self-disclosure) and nonverbal (e.g., speech duration and conversational turn-taking) communication that can lead to alienation of, and rejection from, others. There is evidence that social perception is impaired in some individuals with social anxiety disorder. That is, the ability to ascertain accurately the emotional states of other people, the effect one is having on others during interactions, and others' desire to continue the interaction may be compromised (Schroeder, 1995). In addition, people with SAD have been found to interpret neutral and even positive social situations in a negative light (Alden & Wallace, 1995; Stopa & Clark, 2000).

Interpersonal perspective. Quality of relationships and anxiety are interconnected from our earliest days. Given the early age of onset of SAD, and the influence of socially anxious behaviour on the development of interpersonal style and skills, the developmental progression of anxiety and social functioning is worthy of examination. There are several angles from which to analyze this link, but what seems to tie everything together is the fact that people's social behaviour is dynamically and reciprocally determined by interaction with social environments (Alden & Taylor, 2004). Interpersonal theory provides an appropriate framework for understanding how social processes relate to the development and maintenance of social anxiety.

Interpersonal theory is not a competing theory of etiology for SAD but rather a complementary one (Segrin, 2001c). As Segrin (2001c) points out, it is rarely beneficial to view the contributions of different theories to the understanding of a disorder in an either/or manner since typically biological, behavioural, cognitive and interpersonal factors interact (i.e., equifinality) to influence mental health. It makes more sense to examine the contributions of various theories to the explanation and prediction of the development, course and outcome of a disorder. The interpersonal approach adds a missing layer that helps account more fully for what leads to and maintains social anxiety. In fact, many of the central constructs in other schools of thought can be traced to interpersonal processes. For example, distorted cognitive processes involved in various forms of psychopathology such as an eating disorder or depression may have interpersonal origin – e.g., parental pressure for inordinately high levels of achievement, or rejection from peers. Many of the findings on social skill deficits discussed above were from studies conducted from the interpersonal perspective.

There are several interpersonal models but most share the same four, basic tenets (Alden & Taylor, 2004). First, it is believed that dysfunctional behaviour develops from a pathological social environment, a process called social pathogenesis. People are thought to develop interpersonal strategies to navigate early relationships with significant others. These patterns are perpetuated as people internalise the social role they have assumed since early in their lives. Thus, the second tenet is that these strategies and the resultant interactions serve to shape one's sense of self. The third tenet is that people tend to establish interpersonal patterns that serve to maintain their views of self and the tendency to adopt the same role in future relationships. The fourth tenet is that dysfunctional behaviour is an (ineffective) attempt to keep close to others. In sum, early relationships define roles that people tend to assign to themselves and to others, even

when not warranted. With their behaviour influenced by their own expectations, they tend to elicit behaviours from others that serve to reinforce those beliefs and roles across time.

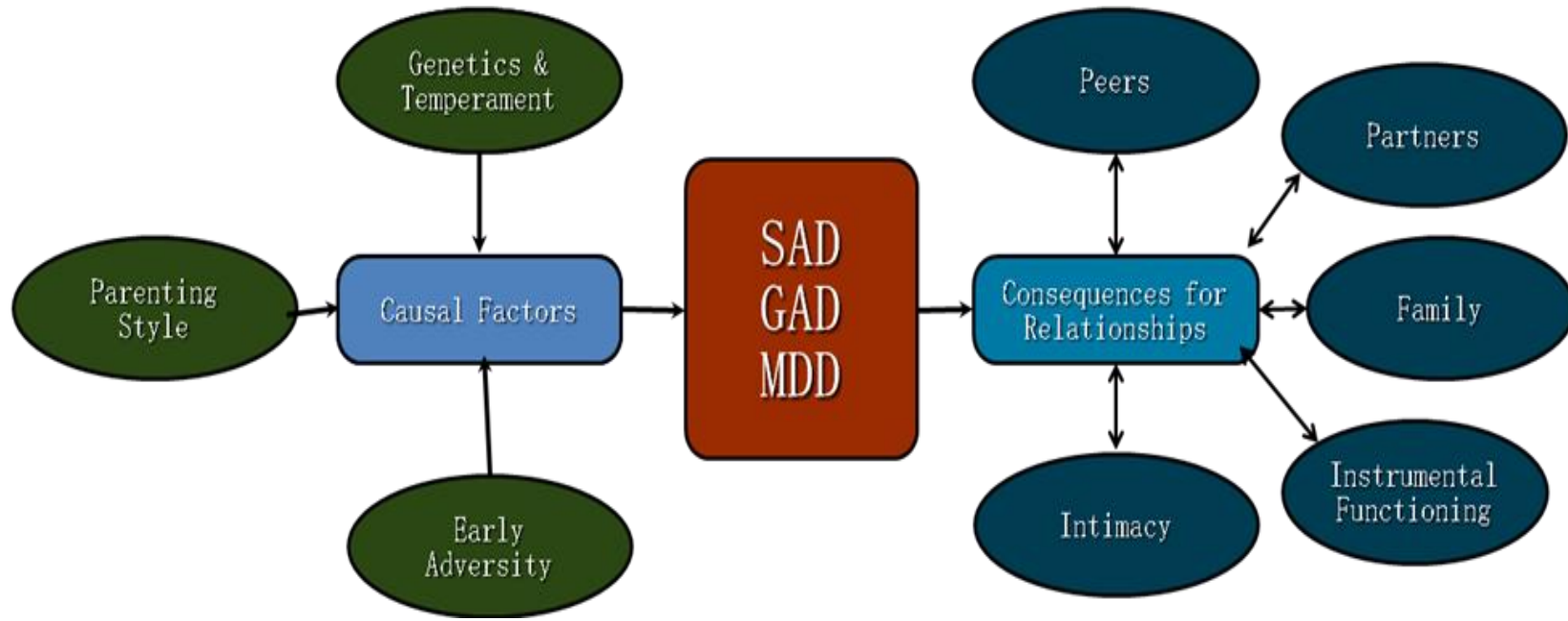
Various models have some differences but they all embody the central philosophy that people's social relationships are intimately tied to their physical and psychological well-being (Alden & Taylor, 2004; Segrin, 2001a). A key construct in this perspective is that of the self-perpetuating interpersonal cycle (Alden & Taylor, 2004). People tend to expect to be treated in the present as they have been in the past, and they often repeat the same behavioural strategies that elicit the same behavioural responses from others, thus maintaining social expectations and interaction patterns (Alden & Taylor, 2004; Benjamin, 1993; Blatt & Zuroff, 1992; Coyne, 1976). This is how relationships not only shape social behaviour, but also contribute to sense of self and others (Alden, 2001), highlighting the import of considering relationships in any attempt to understand further the dynamics that cause, perpetuate, exacerbate and ameliorate social anxiety disorder.

Kendler and Prescott (2006) point out that there is a reciprocal relationship between social support (environment) and the person (e.g., temperament) in that people do not passively receive social support, they interact with their environments to determine amount and quality of such (Sarason, Sarason, & Shearin, 1986). Given this reciprocal interplay of interpersonal factors and well-being, it is impossible to understand fully the origins, course and consequences of psychological difficulties without considering the interpersonal context in which they occur (Segrin, 2001c). Overall, there is literature to support the assertion that people enter the social developmental trajectory toward social anxiety at various points, be it a predisposition via inhibited temperament, early adversity, or the result of adolescent peer interactions (Alden & Taylor, 2004; Kashdan & Herbert, 2001). Regardless of where anxiety symptoms originate,

interpersonal difficulties undoubtedly complicate the course of psychopathology, and symptoms appear to be maintained by an interpersonal cycle that will take a toll on social skills, social functioning and relationships (Alden & Taylor, 2004). It is altogether surprising that this area has been so lacking in the literature for so long, and it is imperative that the links between social anxiety and relationship consequences be examined more fully.

In sum, there are several factors that can lead to the outcome of social anxiety disorder (or exacerbate existing symptoms) including, but not limited to, genetics, temperamental style, parenting practices and styles, early adversities such as abuse or peer rejection, social opportunities and practice, and general social abilities. In turn, social anxiety disorder appears to lead toward, among other things, impaired social relationships, and compromised levels of intimacy in these relationships, as will be discussed next. These factors have also been studied extensively in GAD and MDD and have been found to be important in the development of these disorders (Kendler & Prescott, 2006). These connections are depicted in the diagram below.

Figure 1. Influences of disorders across time



Social Anxiety Disorder and Relationships

Since individuals with SAD often avoid social interactions, social support is especially relevant to those with this disorder (APA, 2013; Ham, Hayes, & Hope, 2005; Rapee, 1995). Research in this area has historically been based on community or clinical samples. In one such clinical study, Davidson, Hughes, George and Blazer (1994) compared individuals with social anxiety disorder to healthy controls and found those with social anxiety to be more impaired on several subscales of the Duke Social Support Index (Landerman, George, Campbell, & Blazer, 1989) than were healthy controls. Even when support is available, there is evidence it is perceived to be of poorer quality. Bech and Angst (1996) compared a sample of individuals with social anxiety to healthy controls on their levels of satisfaction with friends, family and partners. Those with clinical and subthreshold social anxiety showed lower satisfaction and well-being regarding their friends and partners than did the healthy controls.

In Lochner and colleagues' (2003) clinical study, they compared patients with obsessive compulsive disorder (OCD), SAD and panic disorder (PD) and found those with social anxiety disorder to have greater social impairment. They found that the extent of impairment due to OCD, PD or SAD was similar across Quality of Life scales, however, different domains were affected in each disorder. OCD patients reported more impairment in family life, SAD patients had more impairment in social life and leisure activities, and panic disorder patients were less able to avoid the use of nonprescribed drugs. They also found that quality of life was lower in patients as their symptom severity increased and if they had comorbid depression. The authors concluded that while the extent of impairment appears similar across these different anxiety disorders, characteristics of each disorder may be differentially associated with impairment in

different domains. These unique domains may warrant tailored interventions for different anxiety disorders.

Torgrud and colleagues (2004) administered two social support measures (the Social Support Questionnaire [SSQ; Sarason, Levine, Basham, & Sarason, 1983] and The Multidimensional Scale of Perceived Social Support [MSPSS; Zimet, Dahlem, Zimet, & Farley, 1988]) to 132 individuals with DSM-IV generalized social anxiety disorder who presented for participation in a treatment study. These data were compared with those obtained from a healthy control group and from several clinical and non-clinical samples reported in the literature. They found that people with SAD perceived less support from friends and significant others, and were less satisfied with the social support they had available. They also suggested that the deficits perceived to exist in the social support of those with generalized social anxiety disorder may play a causal role in the development of co-morbid disorders, meaning social support may be an especially important treatment target for those with social anxiety disorder.

A few studies at the epidemiological level have been completed fairly recently. SAD has been associated with compromised social functioning and limited social support networks in some of this research (Rodebaugh, 2009; Ruscio et al., 2008). In a comprehensive Canadian epidemiological study using the Canadian Community Health Survey (CCHS) cycle 1.2, Shields (2004) examined the characteristics and correlates of social anxiety disorder. She assessed the associations between SAD and social support, disability and quality of life. She used cross tabulations to estimate prevalence and characteristics associated with SAD and to estimate comorbidity, and multiple logistic regressions to assess the associations between SAD and types of impairment. Social support was measured with 19 questions assessing how often different forms of support were available to the respondent. These behaviours translated into four types of

support: tangible support (having someone available to provide help if needed), affection (having someone who shows love and makes you feel wanted), positive social interaction (having someone with whom you can relax and have fun) and emotional or informational support (having someone who makes you feel understood about worries, problems or fears). Shields (2004) found that respondents with SAD lacked adequate social support. Compared to those with no history of the disorder, those who had SAD were more than twice as likely to have low levels of each type of support. This lack of social support was deemed not to be the result of lack of interest in contact. Studies have shown that those with SAD desire social interaction but their fear of such contact often leads to social isolation (Chartier, Hazan, & Stein, 1998; Coupland, 2001; Liebowitz, 1999).

To summarize, there is some research supporting the link between social anxiety and general impairment in relationships; however, there are relatively few studies that have directly evaluated perceived social support or quality of those relationships in individuals with social anxiety (Torgrud et al., 2004). Many of the studies that have been completed are compromised by methodological limitations, such as a narrow assessment of support (e.g., Furmark, Tillfors, Everz, Marteinsdottir, Gefvert, & Fredrikson, 1999), or confounding diagnoses and the absence of a *no disorder* comparison group (e.g., Thevos, Thomas, & Randall, 1999). Other studies have examined issues such as the relation between social anxiety and quality of social interaction as related to difficulties in meeting new people (e.g., Bruch & Pearl, 1995; McClure & Lydon, 2014; Twentyman & McFall, 1975). What remains unclear is how social anxiety influences the perceived quality of specific types of relationships. The relevant literature on family relationships, friendships and romantic relationships will be discussed next. The bulk of this literature includes studies based on community, and later, clinical samples. These studies will be

reviewed first, followed by the epidemiological research.

Social anxiety disorder and family relationships. In general, research suggests that family relationships perform different functions in people's lives with respect to provision of social support, as compared to non-kin relationships (Antonucci, Ajrouch, & Janevic, 1999). Family members are often the most important source of instrumental support (e.g., money, goods, services), while friends provide instrumental support less often (Crohan & Antonucci, 1989). Family members and friends both tend to be important sources of emotional support (Connidis & Davies, 1990, 1992; Felton & Berry, 1992). Rook and Ituarte (1999) examined the roles that social support, companionship and social control (the positive influence of social networks on individuals' behaviour) played in the close relationships of a sample of 180 older adults from the community. They also investigated how these elements of close relationships differentially influenced the perceived quality of older adults' family relationships and friendships. They found that older adults' family members served more as sources of social control and social support (instrumental and emotional support), whereas their friends served most often as sources of companionship. Perceived quality of family ties was related to emotional support, companionship, and social control, whereas the perceived quality of friendships was related to emotional support, instrumental support, and companionship.

There is almost no literature specific to the relationship between social anxiety disorder and familial relationships outside of those studies on marriage, and the research highlighting the familial roots of social anxiety. The few studies that were identified while conducting this review tended to be based on clinical samples and support the general assertion that people with SAD tend to experience greater impairment in familial relationships than do individuals without the diagnosis (Schneier et al., 1994; Wittchen & Beloch, 1996). However, one study conducted by

Starr and Davila (2008) examined interpersonal correlates of social anxiety and depressive symptoms in a community sample of seventh and eighth grade female students, controlling for comorbid symptoms. They found that social anxiety and depressive symptoms both showed significant correlations with peer and family variables. However, partial correlations revealed that social anxiety (controlling for depressive symptoms) was more strongly related to peer variables (e.g., lowered social competence, decreased trust and communication in friendships, and fewer close friends), whereas depressive symptoms (controlling for social anxiety) were more strongly related to family variables (e.g., lower trust and greater alienation and conflict). Starr and Davila (2008) actually did not find a significant relationship between social anxiety and family variables when controlling for depressive symptoms, suggesting that interpersonal dysfunction associated with social anxiety more strongly plays out in peer relationships, at least among early adolescent girls in a community sample. That being said, the authors added that clinical levels of social anxiety symptoms did interfere with family relationships, as indicated by measures of father–child conflict and parental trust, communication, and alienation.

Most of the other studies that investigated family relationships were based on clinical samples. Schneier and colleagues (1994) examined the functional impairment of 32 patients with social anxiety disorder as compared to 14 controls. They found that more than half of SAD patients reported at least moderate impairment in functioning due to social anxiety and avoidance. Impairment, as measured by the Disability Profile of the Liebowitz Self-Rated Disability Scale (DSRS; Schneier et al., 1994), was most notable in the areas of education, employment, family relationships, romantic relationships, friendships and social networks (Schneier et al., 1994). However, it is not clear in their paper how the constructs of family and other relationships were measured.

Wittchen and Beloch (1996) examined the functional impairment of 65 patients with social anxiety disorder as compared to 65 matched controls. Impairment was measured by the Short-Form Health Survey (SF-36; Ware & Shelbourne, 1992) and the Liebowitz Disability Self-Rating Scale (DSRS; Schneier et al., 1994). Quality of relationships was measured in the SF-36 with these two questions: "To what extent have your health or emotional problems interfered with your normal social activities (family, friends, neighbours, groups)?" and "How much of the time have your health or emotional problems interfered with your normal social activities (family, friends, neighbours, groups)?" Quality of relationships was measured on the LSRDS (later known as the DSRS) with this series of questions: "How much does your emotional problem limit your ability to do the following?: Having mostly comfortable interactions with the members of my family, having a satisfying romantic/intimate relationship, having at least a few close friends and a small group of acquaintances." Again, the authors found that SAD patients reported most impairment in the areas of education, career, and relationships with partners, family and friends.

Rapaport and colleagues (2005) examined a number of clinical trial patients with anxiety and depressive disorders and found, consistent with other research (e.g., Safren, Heimberg, Brown, Holle, 1996–1997; Wittchen & Beloch, 1996) that all disorders were associated with poorer quality of life than that of members of a community sample. They completed a cross-sectional analysis of patients entering medication trials and found significant quality of life impairment for all anxiety and affective disorders examined (i.e., major depressive disorder, chronic major depressive disorder, dysthymic disorder, premenstrual dysphoric disorder, posttraumatic stress disorder [PTSD], PD, SAD, and OCD). More specifically, those with social anxiety disorder reported significant social and family relationship impairment.

Thus, based on the limited research available on familial relationships and social anxiety disorder, patients with SAD appear to suffer impairment in family relationships, while those with subclinical symptoms (but not necessarily diagnoses) may do so less.

Social anxiety disorder and friendships. Friendships are an especially important part of people's social networks because they provide companionship, assistance and support (Finchum & Weber, 2000). They are the most prevalent form of relationship people experience throughout their lifetimes and they are distinct from other relationships, such as family or work relationships, largely due to their voluntary nature (Blieszner & Adams, 1992). Time spent with peers is increasingly important from childhood through adolescence as these relationships facilitate the development of intimacy and companionship (Newman Kingery, Erdley, Marshall, Whitaker, & Reuter, 2010). Friendships are based on loyalty and trust and provide for a foundation of social skills that generalize to same- and opposite-sex relationships during adolescence and adulthood (Buhrmester, 1990; Newcomb & Bagwell, 1996). Childhood peer relationship experiences tend to predict the quality of relationships and mental health in adulthood (e.g., Bagwell, Newcomb, & Bukowski, 1998). Anxious youth often avoid participating in social interactions and miss out on extracurricular activities such as sleepovers and birthday parties (Albano, Chorpita, & Barlow, 2003). These anxiety-induced disruptions in social practice and functioning can interfere with important skill acquisitions necessary for psychological development and wellbeing and can have serious implications (Tillfors, Persson, Willen, & Burk, 2012).

Given the early age of onset of SAD, much of the research on social anxiety disorder and friendships has examined the peer relationships in community samples of children and adolescents. These dimensional (rather than diagnostic) studies, often in the developmental and

social psychology literature, typically examined symptoms rather than diagnoses of SAD. This research, largely using elementary and high school student populations, suggests that socially anxious children often experience low levels of peer acceptance (e.g., Albano, Chorpita, & Barlow, 2003; Greco & Morris, 2005; Inderbitzen, Walters, & Bukowski, 1997; La Greca & Lopez, 1998; La Greca & Stone, 1993) and low levels of intimacy and support in close relationships (e.g., Bell-Dolan, Foster, & Christopher, 1995; Greco & Morris, 2005; La Greca & Lopez, 1998; Vernberg, Abwender, Ewell, & Beery, 1992). They tend to have poor social skills (Albano et al., 2003), are often withdrawn, and are likely to be neglected by others (Greco & Morris, 2005). They are also likely to be rejected (Bell-Dolan et al., 1995) and victimized (Hawker & Boulton, 2000) by their peers. Socially anxious youth have been found to have smaller networks of close friends, and their friendships have often been characterized as low quality (Greco & Morris, 2005; La Greca & Lopez, 1998; Tillfors et al., 2012).

The community study conducted by La Greca and Lopez (1998) was one of the few studies on social anxiety and relationships that focused on gender differences in detail. These authors examined the link between social anxiety and the social functioning (e.g., perceptions of competency in close friendships) and number and quality of peer relationships in a sample of 250 high school students. They found that girls reported more social anxiety than did boys, and that social anxiety was more strongly related to girls' social functioning than it was to boys'. Overall, adolescents with higher social anxiety reported poorer social functioning as indicated by less support from classmates and less social acceptance, and they felt less romantically attractive to others. These associations were found for both boys and girls, although they were stronger for girls. Girls with higher social anxiety reported fewer friendships, and less intimacy, companionship, and support in the close friendships they did have. The authors hypothesized that

difficulties in close friendships may be more strongly linked to feelings of social anxiety for girls because of the emphasis girls place on intimacy and emotional support in their friendships as compared to boys (Berndt, 1982; Berndt & Perry, 1986; Buhrmester & Furman, 1987). La Greca and Lopez (1998) also examined the relationship between social anxiety and adolescents' perceived support from significant adults (i.e., parents, teachers) but did not find a significant association.

Friendship is not always a source of continual support. La Greca and Harrison (2005) highlighted the importance of considering both positive and negative aspects of adolescents' close relationships. They examined several levels of interpersonal functioning in an adolescent student sample and assessed the links between peer crowd affiliations, peer victimization, qualities of best friendships and romantic relationships and symptoms of depression and social anxiety. They found having a peer crowd affiliation, positive qualities in best friendships (e.g., disclosure), and the presence of a dating relationship were protective against feelings of social anxiety. Relational victimization and negative interactions in best friendships (e.g., criticism) were related to high social anxiety. Conversely, affiliation with a high-status peer crowd protected somewhat against depressive symptoms, while relational victimization and negative qualities of best friendships and romantic relationships were associated with depressive symptoms. Greco and Morris (2005) also reported a positive correlation between social anxiety and negative friendship quality scores, but only for girls. They administered questionnaires to 50 teachers and 333 public school students and found a negative relationship between anxiety and positive friendship quality, indicating close friendships are particularly important for girls' adjustment (Greco & Morris 2005). On the other hand, several other studies have found the

relationship between peer relationships and anxiety to be similar for boys and girls (e.g., Ladd & Troop-Gordon 2003; La Greca & Harrison 2005; Vernberg et al., 1992).

There is a limited number of longitudinal studies making the direction of the relationship between peer social difficulties and anxiety unclear, but it appears to be bi-directional. Children with anxiety find themselves at odds with their peers from the very first years of life; at the same time, children's difficulties with peers may contribute to the origins of anxiety (Hay, Payne, & Chadwick, 2004). Higher levels of anxiety lead to poorer peer functioning; however, there is also evidence that peer difficulties lead to increased anxiety (Newman Kingery, Erdley, Marshall, Whitaker, & Reuter, 2010). In one of the few studies to use a longitudinal design, Vernberg and colleagues (1992) considered the influence of social anxiety on companionship and intimacy in new friendships of adolescent students who had recently relocated. Relationships were assessed at several time points across the school year (September, November, and May). A reciprocal relationship between social anxiety and friendship quality was supported: higher intimacy and companionship in September predicted lower anxiety in November, whereas higher social anxiety in November predicted lower intimacy in friendships at the end of the school year. No gender effects were found. In another study, Chansky and Kendall (1997) found that having a good friend was associated with lower levels of social anxiety for nonanxious controls but not for anxious youth. It is possible that the protective function often provided by friendship may be attenuated in anxious youth as a result of their friendships being of lower quality or intimacy (Newman Kingery et al., 2010). It appears that with impaired relationships, social support, both perceived and received, decreases and impairment in functioning is compounded.

There are very few clinical studies wherein the relationships of individuals diagnosed with SAD have been assessed. Generally, it has been shown that socially anxious children

engage in fewer interactions with peers and these interactions tend to be less satisfying and have less optimal outcomes (Beidel, Turner, & Morris, 1999; Spence, Donovan, & Brechman-Toussaint, 1999). Chansky and Kendall (1997) examined the link between anxiety and negative social expectancies by comparing 47 anxiety-disordered children to 31 non-anxiety-disordered controls on social expectancies, social anxiety, and self-perceived social competence. Members of the anxiety disordered group met DSM-III-R criteria for overanxious disorder (OAD; $n = 25$), separation anxiety disorder (SAD; $n = 11$), or avoidant disorder of childhood (AVD; $n = 11$) as assessed by parent report on the Anxiety Disorder Interview Schedule (ADIS, Silverman, & Nelles, 1988). Participants were shown a videotape of confederate children playing a game and were told the children were next door. In anticipation of joining the play, social expectations were assessed via thought-listing and a questionnaire. Anxiety-disordered children reported significantly more negative social expectations, lower social self-competence, and higher levels of social anxiety than did controls. Parents and teachers each rated the anxiety-disordered children as significantly more socially maladjusted than controls. The authors found that social anxiety was the best predictor of social expectancies.

Beidel and colleagues (1999) examined the behaviour and functional impairment of 50 children who were referred for treatment of social anxiety disorder. These children were compared to a nonclinical sample of 22 peers. Children were assessed via semi-structured diagnostic interviews, self-report instruments, parental and teacher ratings, a behavioural assessment, and daily diary recordings. They found that 75% of participants with social anxiety disorder reported having no or few friends, and 50% were not involved in any extracurricular or peer activities. In addition, children with social anxiety disorder demonstrated significantly poorer social skills than controls. These authors also examined differences between genders and

found no significant differences in clinical presentation or level of impairment between girls and boys.

Although it appears that people with social anxiety disorder may have general interpersonal impairment, evidence that social anxiety disorder affects friendship in particular (especially in adulthood) is limited (Rodebaugh, 2009). There is research to suggest that social anxiety disorder has a negative influence on friendships as defined by constructs such as reduced quality of life (Schneier et al., 1994), perceived social support (Torgrud et al., 2004) and reduced likelihood of having close friends (Montgomery, Haemmerlie, & Edwards, 1991). However, as Rodebaugh (2009) points out, these studies did not test for the influence of social anxiety disorder specifically on friendship. Rodebaugh (2009) suggests that another disorder such as depression might account for the impairment observed, or that the impairment measured reflects general interpersonal impairment rather than anything specific to friendship per se.

To date, only two epidemiological studies have assessed the specific link between SAD and friendship quality in adults (Rodebaugh, 2009; Whisman, Sheldon, & Goering, 2000). The first of these studies was a Canadian epidemiological study conducted by Whisman and colleagues (2000) based on data collected in 1991. These authors examined satisfaction in marital, family, and friendship relationships in 4,933 participants in the Ontario Health Survey Mental Health Supplement (OHS-MHS). Psychiatric diagnoses were assessed with the Composite International Diagnostic Interview (CIDI), a structured interview administered by trained interviewers to yield diagnoses based on the revised third edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-III-R). Whisman and colleagues (2000) measured dissatisfaction in relationships with spouse, relatives, and friends with the question, "During the past 6 months, how well have you gotten along with your spouse/close relatives/close friends?"

This question was answered for each relationship type on a 5-point scale with response options ranging from "very well, no problems" to "not well at all, constant problems." They found no link between friendship quality and social anxiety disorder and no evidence that associations between social relationships and psychiatric disorders were moderated by gender. Although an epidemiologic sample, this study is seriously limited by the fact that relationship quality was assessed with a single survey question.

Conversely, Rodebaugh (2009) examined two epidemiological datasets (the National Comorbidity Survey Replication [NCS-R] and the National Survey of American Life [NSAL]) to test the association of social anxiety disorder with perceived friendship quality beyond that of perceived family relationship quality. Controlling for comorbid mental disorders and demographics, he found social anxiety disorder was the only diagnosis related to perceived friendship quality and that those with social anxiety disorder reported more impairment in friendship quality. This study was thorough and well designed but does not allow for a comparison of friendships to functioning in other relationships.

Social anxiety disorder and marital relationships. In Western culture, 90% of people will marry at least once in their lifetimes (Schoen & Weinick, 1993). This priority placed on intimate relationships is a testament to the fact that we are social beings who seek close connection with others. Married individuals generally experience better emotional health than do those who are single, divorced or widowed (Waring, Patton, Neron, & Linker, 1986). Prior research suggests that married adults have lower rates of morbidity and mortality compared to unmarried adults (Johnson, Backlund, Sorlie, & Loveless, 2000) and that married adults have greater life satisfaction, happiness, and lower risk for depression (Gove, Hughes, & Style Briggs, 1983; Robins & Regier, 1991). Marriage has been found to offer such protection through

processes such as financial well-being, healthier lifestyles, lower stress, and social support (Coyne et al., 2001; Forthofer, Kessler, Story, & Gotlib, 1996; Umberson, Thomeer, & Williams, 2012).

Some research suggests, however, that unhappily married couples are less likely to experience the same protective health benefits as their happily married counterparts (Coyne et al., 2001; Ross, Mirowsky, & Goldsteen, 1990). Greenblatt and colleagues (1982) suggest that the quality of a relationship is more instrumental in the link between social networks and mental health than is the mere existence of a relationship. A poor quality marriage lacking intimacy has been found to be associated with psychopathology (Costello, 1982). Results from Waring and colleagues (1986) also support this. They found couples with the lowest intimacy scores to be more likely to report symptoms of depression and anxiety than those with higher intimacy scores.

There is considerable research linking marital distress with mental health in community-based studies. Holt-Lunstad and colleagues (2008) investigated the influence of marital status, relationship quality, and network support on measures of psychological and cardiovascular health in 204 married and 99 single males and females (N=303) from the community. Marital relationship quality was assessed with the short Marital Adjustment Test (MAT; Locke & Wallace, 1959) and the Dyadic Adjustment Scale (DAS; Spanier, 1976). Consistent with research indicating that marriage carries health benefits, they found that both marital status and the quality of a marriage were associated with lower blood pressure. However, when they compared single individuals to individuals in low-quality marriages, single people actually fared better than those who were unhappily married. In further support of this, in a prospective study examining the relationship between getting divorced and the subsequent incidence of

psychopathology across a two-year period, Overbeek and colleagues (2006) found that getting divorced was prospectively related to the subsequent total and new case incidence of alcohol abuse and dysthymia, and to the subsequent incidence of social anxiety disorder. However, after controlling for perceived poor marital quality prior to the divorce, effects on mental health were only present for those with onset of substance disorders, indicating that the marital discord precipitating a divorce appeared to be what determined the onset of mental health problems, rather than the divorce itself. Based on this collective research, it appears a strong and nurturing marriage may be protective against ill health and psychopathology, while a marriage characterized by discord is not (Hart, Turk, Heimberg, & Liebowitz, 1999).

Other community studies have found people with social anxiety report less satisfying relationships with their spouses (McLeod, 1994) and lower levels of intimacy within the relationship (Alden & Taylor, 2004; Cuming & Rapee, 2009). Davila and Beck (2002) investigated the interpersonal characteristics of close relationships in a sample of 168 undergraduates. Participants were asked about the extent to which relationships were close, confiding, supportive, dependable, mutual, stable, and appropriate in conflict resolution. They found that symptoms of social anxiety were related to interpersonal behaviours reflecting less assertion, more conflict avoidance, more avoidance of expressing emotion, more fear of rejection, and greater interpersonal dependency. Their study was one of the first to document clearly the types of interpersonal deficits that people with social anxiety experience in their closest relationships; however, they did not examine the distinctions between family, friend and partner relationship characteristics.

In another community study, Cuming and Rapee (2009) investigated whether or not a self-protective, minimally disclosing communication style often adapted by socially anxious

individuals applied to their close relationships and reduced the quality of support they received in those relationships. They found social anxiety was associated with a lack of disclosure in both romantic relationships and close friendships in females, but not in males. Socially anxious women lacked self- and emotional-disclosure in their communication within romantic relationships and close friendships. In romantic relationships specifically, social anxiety was associated with less disclosure of information about the self and negative emotions. After controlling for depressive symptomatology, however, socially anxious women were as likely as non-socially anxious women to reveal positive emotions to their romantic partners. However, other research on quality of relationships has not found effects for gender in studies of communication in close relationships (Sparrevohn & Rapee, 2009) and marital distress and psychopathology (Whisman, 2007). In sum, community studies have found poorer communication common to the romantic communication of those with high social anxiety and their partners, likely leading to lower relationship satisfaction.

Although social anxiety is often associated with interpersonal avoidance, it has also been associated with interpersonal dependency, especially in the context of close relationships (Darcy, Davila, & Beck, 2005; Davila & Beck, 2002). Davila and Beck (2002) reported that socially anxious people exhibited an over-reliance on others. They suggested this tendency likely reflects a dependence on the few relationships socially anxious people have. Wenzel and colleagues (2005) examined differences between 13 socially anxious and 14 nonanxious individuals' communication and social skills in the context of romantic relationships. Individuals and their romantic partners were videotaped while participating in 10-minute neutral, negative and pleasant conversations. Regardless of the type of conversation in which they were involved, socially anxious individuals demonstrated impairment in 10 of the 11 social skills identified as

those that serve to maintain relationships, indicating that the interpersonal consequences of social anxiety on romantic relationships can be quite profound.

Romantic attachments appear to be central in influencing level of functioning and mental health. Holt-Lunstad and colleagues (2008) found no evidence in their community sample that a supportive network outside of romantic relationships buffered the effects of an unhappy marriage or of being unmarried, suggesting that the spousal relationship may be more influential than other relationships. This is congruent with epidemiological findings from Whisman and colleagues (2000) who reported that psychiatric disorders are more commonly associated with the quality of one's relationship with their spouse than the quality of relationship with one's relatives or friends. While spousal support appears to buffer stressful relationships in other contexts, such as at work (Pearlin & McCall, 1990) it seems lack of a happy marriage cannot be as readily buffered by a supportive network of non-marital relationships.

In clinical studies, marital distress has been found to be greater among people with mood, anxiety, and/or substance use disorders (e.g., Goering, Lin, Campbell, Boyle, & Offord, 1996; Whisman, 1999). Clinical studies have demonstrated that people with SAD experience difficulty forming and maintaining romantic relationships (Schneier et al., 1994; Turner, Beidel, Dancu, & Keys, 1986), and have been found to be less likely to be married or in a romantic relationship than individuals without the diagnosis (Montgomery, Haemmerlie, & Edwards, 1991; Schneier, Johnson, Hornig, Liebowitz, & Weissman, 1992; Wittchen & Beloch, 1996). Those with social anxiety have been found to marry later, and to be more likely to marry their first partner (Caspi, Elder, & Bem, 1988; Forthofer, Kessler, Story, & Gotlib, 1996; Sanderson, Di Nardo, Rapee, & Barlow, 1990; Wittchen & Beloch, 1996).

Based on clinical studies, when they do form couple relationships, people diagnosed with SAD tend to experience greater impairment in these relationships (Schneier et al., 1994; Wittchen & Beloch, 1996). In their clinical study, Hart and colleagues (1999) suggested that lack of experience in dating situations or low social competence in people with SAD may contribute to lack of relationship skill development. These authors examined the differences between married and unmarried patients with a principle diagnosis of SAD and found that single patients were more severely impaired. They were more likely to meet criteria for a comorbid mood disorder (although this was true for men only) and for avoidant personality disorder. Single participants also exhibited greater fear and avoidance in both social interaction and performance situations. Among individuals with social anxiety disorder, Hart and colleagues (1999) reported that having never been married suggested a more severe pattern of psychopathology, however, direction of this relationship is unclear. It may be that symptoms decrease the likelihood of getting married, that being single is a risk factor for developing symptoms, or there may be a bidirectional influence between the two. Further research is necessary to determine the sequencing of influence between marital status and severity of social anxiety.

As discussed in the friendship literature section, epidemiological research supports the findings of many community and clinical studies. Whisman and colleagues (2000) measured dissatisfaction in relationships with spouses, relatives, and friends with the following question: "During the past 6 months, how well have you gotten along with your spouse/close relatives/close friends?" This question about marital satisfaction was answered on a 5-point scale with response options ranging from "very well, no problems" to "not well at all, constant problems." Social anxiety disorder was among those disorders that had an association with reduced marital quality, even after controlling for demographics and comorbidity. Again, these

authors found no evidence that the association between marriage and psychiatric disorders was moderated by gender, but their results are limited by the small amount of information concerning relationships available in the study.

Schneier and colleagues (1992) assessed sociodemographic and clinical features of social anxiety disorder in the Epidemiologic Catchment Area (ECA) Survey. The ECA assessed rates and risks for psychiatric disorders based on a probability sample of over 18,000 adults 18 years and older, living in five US communities (New Haven, Connecticut; St Louis, Missouri; Baltimore, Maryland; Durham, North Carolina; and Los Angeles, California). They found those with social anxiety disorder less likely to be married. These differences in marital status remained significant after controlling for study site, sex, age, race and socioeconomic status. They did not assess quality or characteristics of the marital relationship.

In another epidemiological study, Lampe, Slade, Issakidis and Andrews (2003) examined the prevalence, demographic correlates and comorbidity of social anxiety disorder in the Australian National Survey of Mental Health and Well-Being. They found that social anxiety disorder was over-represented in the respondents who reported being separated, divorced or widowed, or never married. These authors also found no significant difference between males and females with respect to marital status. Again, they did not assess quality or characteristics of the marital relationship itself.

Intimacy. When people with social anxiety disorder develop romantic relationships, there is evidence that they tend to view those relationships as less intimate, functional, and satisfying than do those without social anxiety (Alden & Taylor, 2004; Cuming & Rapee, 2009; Sparrevohn & Rapee, 2009). Research on undergraduate samples has shown that socially anxious individuals demonstrate lower levels of intimate disclosure (Meleshko & Alden, 1993), show

less emotional expression and assertiveness (Davila & Beck, 2002; Melfsen, Osterlow, & Florin, 2000), and report less self-disclosure (Snell, 1989) in general interpersonal interactions. There have been relatively few studies on the characteristics of romantic relationships in those with social anxiety. In their clinical study, Sparrevohn and Rapee (2009) examined communication and intimacy between people with social anxiety disorder and their romantic partners. They found that people with social anxiety disorder reported poorer relationship quality within their primary romantic relationships. Those with SAD reported less emotional expression and self-disclosure than the community participants. Overall, individuals with social anxiety disorder reported a lower level of intimacy within their relationships based on a measure that covered several domains including emotional, social, sexual, recreational and intellectual intimacy.

In another small clinical study, Wenzel and Holt (2002) examined romantic relationships in seven adults with SAD and seven nonanxious controls who were matched for age and gender. Anxious and nonanxious individuals both reported satisfying partner relationships, however, socially anxious individuals reported lower levels of intimacy, and were more likely to attribute blame for conflicts in their relationships on stable characteristics of their partners. Socially anxious partners experienced feelings of neglect, loneliness and distance from their partners.

Eng and colleagues (2001) investigated the relationship between attachment styles and social anxiety in a clinical sample. They suggested there is a link between SAD and difficulties with trust, the perceived dependability of others, and self-esteem in attachment in close adult relationships. In another study, Montgomery and colleagues (1991) found that individuals who were rated highly on measures of social anxiety reported less frequent experiences of emotional closeness and security with each of the non-kin members of their social network.

In sum, several studies based largely on clinical samples have found that marriage is a major source of support and can be significantly protective against social anxiety, unless the marriage is unhappy. Social anxiety has been shown to negatively influence the quality of romantic relationships, and impair the success of finding a mate and having a satisfying and intimate relationship. Given the central role of intimate relationships in well-being, the degree of impairment that appears present in the closest relationships of those with SAD, and the established link between marital distress and psychopathology, there is compelling reason to examine further the characteristics and quality of intimate relationships in those with social anxiety disorder.

Summary.

Overall, research suggests that individuals with SAD are more likely to have impaired family relationships, fewer friends, fewer dating and sexual relationships, lower likelihood of marriage, and impaired marriages when they do marry, as compared to the general population and to persons with other anxiety disorders (e.g., Alden & Taylor, 2004; Hart, Turk, Heimberg, & Liebowitz, 1999; Rapaport et al., 2005; Sanderson et al., 1990; Schneier et al., 1994; Turner, Beidel, Dancu, & Keys, 1986). Social support tends to be received from close friends, family and romantic partners (Coyne & Downey, 1991; La Greca & Moore, 2005) and in such cases, is an important protective factor for overall health (Coyne & Downey, 1991). If socially anxious individuals have a reduced likelihood of being in close and romantic relationships, they may have reduced opportunities for receiving the benefits of such social support. This increases their risk for additional distress, psychopathology and functional impairment (Jones & Carpenter, 2003). In addition, even those people with SAD who do have romantic partners may have

reduced support if those relationships are less intimate than are the relationships of those who are less anxious (Sparrevohn & Rapee, 2009).

Limitations of Current Literature

A significant proportion of literature in this area was conducted with a social or developmental psychology focus. These studies are very informative, but they are often limited by small samples of subthreshold rather than diagnosed children or adolescents and thus they do not assist in addressing implications for adult clinical populations, nor do they elucidate questions about marital relationships. Many studies lack a *no disorder* comparison group, or there is little relationship quality information assessed (e.g., few questions asked, or only one type of relationship assessed (i.e., family or friends or intimate partners – e.g., Rodebaugh, 2009).

Epidemiological studies, such as those involving large, nationally-representative samples, offer important advantages over developmental and clinical studies, as they are comprised of both treatment seeking and non-treatment seeking respondents. However, even in the handful of epidemiological studies available in this area, there are often similar limitations to those noted above, such as few relationship variables (e.g., Fehm, Beesdo, Jacobi, & Fiedler, 2008; Ruscio et al., 2008; Whisman et al., 2000), an examination of the quality of only one type of relationship, or all relationship types are combined and assessed collectively (e.g., Davidson et al., 1994; Rodebaugh, 2009; Shields, 2004; Whisman, 1999). Other studies have used measures based on older diagnostic systems such as the DSM-III (e.g., Davidson et al., 1994; Whisman, 1999). Clearly, further research is required to clarify the level of social functioning of those with social anxiety disorder and the impact of social impairment on overall well being.

Other Factors Associated with Social Functioning

There are several factors that influence one's level of social functioning, many that influence the course and severity of social anxiety, and many of these overlap. Taken together, these correlates affect the relationship between social anxiety and relationships and thus warrant mention, and possible inclusion in analyses as covariates.

Several demographic factors have been found to influence the quality and nature of one's relationships, including gender, marital status, age, and socio-economic status. Women have been found to receive more social support than men (MacFarlene, Neale, Norman, Roy, & Streiner, 1981). It may also be that women tend to perceive more social support as compared to men. Given that women's relational attitudes and social identities may lead them to be more responsive than men to relationship issues (Cross & Madson, 1997), relationship distress might be more strongly associated with psychiatric disorders for women than for men. Whisman (2007) proposed that marital distress may be more strongly associated with psychiatric disorder in women than men given that women tend to be more responsive to these relationship events.

People who are not married and live alone are less likely to receive social support than are individuals who are married or cohabit. Family size has also been linked to level of support, although this may exert less influence in current times than it has in the past. People with many children tend to receive more social support than do people with few children given their extensive family networks (Broadhead et al., 1983). Elderly people often receive less social support than do younger people (Stephens, Blau, & Oser, 1978). Meaningful relationships tend to be increasingly valued as people age, thus marital and relationship distress may become increasingly associated with mental health as people get older (Carstensen, Isaacowitz, & Charles, 1999). People with lower socio-economic status and those who have emigrated from

non-western countries report less social support than other people (Dalgard et al., 2006). Social support appears to decrease in relation to occupational status; unskilled workers report the poorest level of social support (Marmot, Kogevinas, & Elston, 1991).

Factors Associated with Social Anxiety

There are also several other factors that influence social anxiety. Many researchers have found SAD to be more common among women than men (Katzelnick & Greist, 2001; Lipsitz & Schneier, 2000; Sareen & Stein, 2000; Schneier et al., 1992; Shields, 2004; Stein & Kean, 2000). Thus, the influence of social anxiety on social support may vary by gender given that women tend to be more distressed by troubled interpersonal relationships than are men (Horowitz, Rosenberg, Baer, Ureno, & Villanesor, 1988; Shear, Feske, & Greeno, 2000).

Ham and colleagues (2005) conducted a study to compare men and women on levels and quality of perceived social support. Overall, they found no differences between men and women on level and satisfaction with social support. They did find, once allowing marital status and age to enter the equation, that younger, socially anxious women reported smaller networks and less satisfaction with networks than did older women (over 35); however, network size results were not statistically significant. Younger men appeared to have larger perceived networks, but there was no association between male age and satisfaction with network. The authors noted that some of the greater support for older women may have been related to a greater likelihood of being married.

Social anxiety disorder also tends to be more common in younger individuals (Schneier et al., 1992). Shields (2004) found those aged 15-24 more likely to have SAD than were middle-aged individuals (4.7% vs. 3.1%). Adults aged 55 and older were least likely to have a diagnosis of SAD (1.3%). SAD has also been found to be more common among those who are divorced

(5%) or have never been married (5%), as compared to those who are married (2.5%) (Shields, 2004). This is congruent with other findings on marital status (Katzelnick & Greist, 2001; Kessler, 2003; Lampe et al., 2003; Lipsitz & Schneier, 2000; Schneier et al., 1992). The association with never married individuals may also be confounded by the effects of young age.

It has been reported that SAD is associated with lower levels of educational attainment (Katzelnick & Greist, 2001; Kessler, 2003; Lipsitz & Schneier, 2000; Schneier et al., 1992; Shields, 2004; Wittchen & Fehm, 2003). Those who had not completed secondary or post-secondary training were more likely to have SAD (Shields, 2004). It has been speculated that a deficit in social skills may be at the root of this impeded school success. SAD has also been found to be associated with lower income and lower employment opportunities (Lampe et al., 2003; Schneier et al., 1992; Shields, 2004). According to the 2002 CCHS, those with lower income as compared to higher income were more likely to report a 12-month history of SAD. In addition, those with SAD were less likely to hold jobs. These associations may be related to the lower level of education in individuals with SAD, and the reduced likelihood that they would remain in employment positions requiring a great deal of interaction.

There is substantial evidence that SAD is associated with an increased risk of comorbid anxiety, mood and substance abuse disorders, with SAD tending to precede these disorders (Keller, 2003; Lampe et al., 2003; Shields, 2004; Wittchen & Fehm, 2003; Wittchen, Stein, & Kessler, 1999). Shields (2004) found people with current SAD were over six times as likely as those in the general population to have major depressive disorder, and three times as likely to suffer from substance dependence. It has been proposed that SAD is more likely to be related to depression in women and substance abuse in men (Keller, 2003). SAD has also been found to be related to social isolation (Furmark, Tillfors et al., 1999; Lipsitz & Schneier, 2000; Wittchen &

Fehm, 2003).

Major Depression and Relationships

Major depression is a common disorder and is typically associated with substantial symptom severity and role impairment (Kessler et al., 2003). There is considerable literature linking depression to interpersonal difficulties in both community and clinical studies. With respect to relationships with family, depression has been associated with attachment insecurity with parents and peers (Armsden, McCauley, Greenberg, Burke, & Mitchell, 1990), overall family dysfunction (Sheeber, Hops, Alpert, Davis, & Andrews, 1997), and poor family relationships (e.g., Armsden et al., 1990; Johnson, Inderbitzen-Nolan, & Schapman, 2005; Sheeber, Hops, Alpert, Davis, & Andrews, 1997). Even when controlling for social anxiety, Starr and Davila (2008) found depressive symptoms in a community student sample to have a stronger relationship with family relationships than peer relationships, as reflected by lower parental trust and greater parental conflict, alienation, and relationship stress, from both parents' and adolescents' perspectives.

A number of aspects of friendship have been investigated in depression, mainly in community studies. In children and adolescents, depression has been associated with low peer acceptance and low friendship quality (Nangle, Erdley, Newman, Mason, & Carpenter, 2003), negative qualities of friendships (La Greca & Harrison, 2005), interpersonal rejection (Bell-Dolan et al., 1995; Nangle et al., 2003; Segrin & Dillard, 1992), and peer victimization (Hawker & Boulton, 2000). Other research has connected depression symptoms to deteriorating friendship quality, friendship instability, reassurance seeking (Prinstein, Borelli, Cheah, Simon, & Aikins, 2005), negative feedback seeking, and perceived criticism in adolescent friendships (Borelli & Prinstein, 2006). In adult samples, depression has been associated with negative beliefs about

social support, and poor social support behaviour (e.g., Billings & Moos, 1984; Davila, Bradbury, Cohan, & Tochluk, 1997).

In assessing marital relationships, depression has been found to be associated with dysfunction in romantic relationships (Davila, Karney, Hall, & Bradbury, 2003; Whisman, 1999). Some research has found an intimate relationship to be protective against depression in the presence of severe adversity (Brown & Harris, 1978), while other literature suggests that couples with depressed members have high rates of divorce (Merikangas, 1984). Having a depressed partner has been associated with disturbed communication patterns (Hautzinger, Linden, & Hoffman, 1982), and hostile interactions (Biglan, Hops, Sherman, Friedman, Arthur, & Osteen, 1985) relative to couples without depressed members. People with depressive symptoms have been found to engage in coercive control of partners' behaviour during marital interactions, and to show maladaptive social support seeking and provision behaviours, such as excessive reassurance seeking (e.g., Biglan et al., 1985; Davila et al., 1997; Joiner, Metalsky, Katz, & Beach, 1999).

There is some evidence that specific interpersonal behaviours commonly exhibited by depressed individuals, such as excessive reassurance seeking, are at the root of interpersonal rejection (Alden, Bieling, & Meleshko, 1995; Joiner et al., 1999). Wierzbicki and McCabe (1988) found social skills deficits were associated with increased depression symptoms over a one month period. Depressed individuals have been found to have less accurate social perceptions (Hollander & Hokanson, 1988), self-critical cognitions following social interactions (e.g., Anderson, Horowitz, & French, 1983), and to underestimate their social behaviour relative to objective observers (e.g., Gotlib & Meltzer, 1987). These forms of interpersonal dysfunction have been cited as both causes and consequences, with interpersonal problems predicting

increases in depression and depression reciprocally predicting increases in interpersonal problems (Davila et al., 2003).

Comorbidity of depression.

Ineffective social interaction styles and interpersonal stress are important contributors to the development of depression (Rudolph, Hammen, Burge, Lindberg, Herzberg, & Daley, 2000). Anxiety symptoms contribute to the impairments in social functioning that lead to depression symptoms (Seligman & Ollendick, 1998). Social anxiety disorder is an early-onset disorder related to a substantially and consistently increased risk for subsequent onset of depression. Beesdo and colleagues (2007) found the risk for subsequent depression was twice as high in individuals who had social anxiety disorder as compared with respondents with no social anxiety diagnosis, and even higher when individuals with social anxiety disorder were compared with respondents with no anxiety disorder. Biggs and colleagues (2009) provide preliminary evidence that difficulties with peer relations play a role in the emergence of depression following anxiety symptoms. However, depressed individuals also contribute factors unique to depression that are related to social difficulties, such as the tendency to express more negative emotions, self-preoccupied complaining and reassurance-seeking than do the socially anxious (e.g., Belsher & Costello, 1991; Blumberg & Hokanson, 1983; Gotlib & Robinson, 1982; Joiner & Metalsky, 1995; Joiner, Metalsky, Katz, & Beach, 1999). Alden and colleagues (1995) point out that relatively few studies of interpersonal behaviour include psychopathology comparison groups. Given that social anxiety and depression tend to covary and given it is unclear which interpersonal factors might uniquely relate to depression versus social anxiety, it is important to examine these disorders in isolation to determine differential effects (Johnson et al., 2005).

Depression and role impairment.

Druss and colleagues (2009) examined role impairment in the NCS-R and found that depression was among the top three mental disorders in terms of level of associated functional impairment. It was found that 64 percent of those with major depression reported severe impairment in at least one of the four Sheehan Disability Scale role domains assessed in the NCS-R (i.e., home management, work, close relationships, and social life). Kessler and colleagues (2003) also evaluated role impairment in the NCS-R with the Sheehan Disability Scale. They found that nearly all (97%) respondents with 12-month major depression reported at least some role impairment associated with their depression in at least one of the four Sheehan role domains assessed. Eighty-seven percent of respondents described this impairment as at least moderate, while nearly 60 percent identified impairment as either severe or very severe, and 19 percent as very severe. They found impairment was greatest in social role functioning (43% were severe or very severe) and was least severe in the work role domain (28% were severe or very severe).

There is much research to support the assertion that depression influences relationships, leads to significant role impairment and exacerbates comorbid diagnoses. Examining this association in contrast with other diagnoses in an epidemiological sample would elucidate the relationship between major depression and relationship quality. It may also inform treatment protocols where social functioning is typically a neglected treatment target (with the exception of in Interpersonal Psychotherapy [IPT]).

GAD and Relationships

GAD is a common mental disorder affecting approximately 3.1% of the general population in a 12 month period (Kessler, Chiu, Demler, & Walters, 2005). Individuals with GAD have

been found to have diminished quality of life (Bourland et al., 2000) and substantial impairment in work and social roles (Henning, Turk, Mennin, Fresco & Heimburg, 2007). There is very little research on the quality of relationships in individuals with GAD, and no studies exclusively examining family relationships. One community study conducted by Eng and Heimberg (2006) assessed interpersonal difficulties in 48 undergraduate psychology students who met the diagnostic criteria for GAD according to a symptom self-report. The authors compared these 48 undergraduates to 53 controls, all of whom recruited one friend to answer self-report questionnaires about the quality of their friendship with the participant, and their perception of the interpersonal functioning of the participant. GAD participants reported less secure attachments to their parents than did controls, but they reported similar levels of attachment to peers and perceived social support. Respondent data about interpersonal problems and friendship quality were compared to the reports of close friends of the participants and controls. The authors found that participants with self-reported GAD reported greater severity of interpersonal problems than controls, and were more distressed by problems of nonassertiveness, over-accommodation, self-sacrificing behaviours, and intrusiveness or neediness. However, friends of GAD participants did not attribute significantly greater interpersonal problems to them than did the friends of control participants. Further, these authors found no significant differences between the friends of the GAD participants and friends of controls on ratings of friendship quality.

Evidence about marital quality and GAD is also relatively scarce (Friedman, 1990). McLeod (1994) found that wives with GAD reported significantly higher levels of marital distress than wives who did not have GAD, while neither wives nor husbands reported significantly poorer marital functioning when the husband had GAD.

There is also relatively little epidemiological research on marital functioning and GAD. In one study, Yoon and Zinbarg (2007) examined data from the National Comorbidity Survey (NCS; Kessler et al., 1994) to determine the relation between a lifetime diagnosis of GAD and entry into marriage or a marriage-like relationship. They found individuals with GAD to be more likely to get married or enter into a marriage-like relationship than those who did not have a GAD diagnosis. The authors state that these results are consistent with the notion that elevated interpersonal dependency is characteristic of GAD.

In another epidemiological study from the Ontario Health Survey, Whisman, Sheldon and Goering (2000) found that marital dissatisfaction was most strongly related to GAD, an effect not moderated by gender or attenuated by dissatisfaction with relationships with other relatives or friends. Whisman (2007) examined a group of married individuals from the NCS-R. A randomly selected subset of married people ($n = 2,213$) answered several questions about their marriages, including marital distress items adapted from the Dyadic Adjustment Scale (DAS). Whisman (2007) found marital distress to be significantly related to psychiatric disorders even after controlling for demographic variables. Those with GAD had some of the strongest associations with marital distress. Whisman's findings are consistent with other findings that family and interpersonal concerns are the most common issues about which people worry (Breitholtz, Johansson, & Öst, 1999; Craske, Rapee, Jackel, & Barlow, 1989; Roemer, Molina, & Borkovec, 1997). They also support the assertion that GAD is associated with impairment in general interpersonal functioning (Eng & Heimberg, 2006). Whisman (2007) found no gender effect in the association between marital distress and psychiatric disorder.

In their epidemiological study, Maulik and colleagues (2010) conducted a longitudinal examination of the direct and stress-buffering effects of social networks and social support on the

association between life events and disorders (including depression and GAD, among others) in a sample of 1071 follow-up participants in the Baltimore Epidemiologic Catchment Area (ECA) Study. They found social support from relatives, friends or spouses was only associated with reduced odds of panic disorder and psychological distress after experiencing specific life events. Social networks and social support had almost no direct or buffering effect on major depressive disorder, and no effect at all on GAD.

Comorbidity of GAD.

GAD is often comorbid with SAD (APA, 2000), however, GAD and major depression much more commonly co-occur (Kessler et al., 1996; Massion, Warshaw, & Keller, 1993; Roy-Byrne, 1996; Sherbourne, Jackson, Meredith, Camp, & Wells, 1996; Wittchen et al., 1994). There has even been debate about the utility of the distinction between GAD and major depression given their level of clinical overlap. Stein and Heimburg (2004) examined a community sample from the Mental Health Supplement of the Ontario Health Survey (Offord, Boyle, Campbell, Goering, Lin, Wong, & Racine, 1996) to investigate whether or not GAD warranted a distinct diagnostic entity. They compared individuals with and without GAD, stratified by comorbidity with MDD, and controlling for demographics and dysthymia, to determine whether or not there was an increased association between GAD and disability and quality of life measures beyond that accounted for by MDD. They found that GAD was associated with an increased likelihood of poor global well-being and life satisfaction beyond that associated with depression, supporting the distinction of GAD as a separate diagnostic category. Stein and Heimburg (2004) outline background that supports the notion that the diagnoses of GAD and depression, whether etiologically distinct or not, provides independently useful information about functional impairment.

GAD and role impairment.

GAD is typically characterized by an early onset and a predominantly chronic course. It has been associated with high rates of treatment seeking, increased medication use, substantial impairment in quality of life, significant social impairment and occupational disability, and deterioration in emotional well-being (Massion et al., 1993; Roy-Byrne, 1996; Wittchen et al., 1994).

Although GAD has been associated with reduced quality of life and general impairment, quality of relationships in GAD has only begun to receive research attention in the past few years. More extensive, diagnostically-comparative studies in non-treatment-referred (epidemiologic) samples will help fill the gap in the literature surrounding sequelae of GAD and appropriate interventions aimed at minimizing functional impairment due to GAD and common comorbid diagnoses.

Study Design

Much of the research to date in the area of psychological disorders and relationships has been limited by small samples or few relationship-specific variables. Therefore, I chose to utilize a large, population-based, nationally-representative dataset: the National Comorbidity Survey - Replication (NCS-R). The NCS-R provided unique opportunities to use a dataset with a strong diagnostic interview (the Composite International Diagnostic Interview; CIDI-3.0; Kessler & Ustun, 2004) and a greater number of questions about relationships than is found in most epidemiological studies. The NCS-R will be discussed in detail below.

In summary, the purpose of the present study was to examine the association between common mental disorders and relationship quality. Perceived quality of family relationships, friendships and romantic partnerships, as well as the degree of domain-specific role impairment,

were compared for respondents with SAD to those with another anxiety disorder (GAD), those with a mood disorder (major depressive disorder; MDD), and controls (no 12 month history of disorder). This study sought to redress the noted limitations in the existing literature, with the goal of lending guidance and empirical support to the inclusion of 'relationship quality' as an important area for assessment and possibly treatment for those with psychological disorders, and in particular, those with SAD, GAD and MDD.

Hypotheses.

It was anticipated that those with SAD would have greater impairment in relationships compared to those with no 12 month disorder. I also wished to compare the quality of relationships in SAD to those with GAD and MDD. Thus, analyses were separated into the following primary hypotheses and exploratory research questions:

Family relationships.

- Those with SAD would report lower family support and higher family stress than would those with no disorder.
- Those with SAD would report higher family support and lower stress than those with MDD.
- Comparisons between SAD and GAD on family functioning were exploratory in nature and no directional hypotheses were made.

Friendships.

- Those with SAD would report lower friendship support and higher friendship stress than would those with no disorder.
- Those with SAD would report lower friendship support and higher friendship stress than would those with GAD.

- Comparisons between those with SAD and MDD on friendship stress and support are exploratory, thus no directional hypotheses were made.

Marital relationships.

- Those with SAD would report lower marital support and higher marital stress than would those with no disorder.
- Comparisons between SAD and MDD and GAD on marital functioning were exploratory in nature and thus no directional hypotheses were made.

Role impairment.

- People with SAD would have the greatest level of impairment in the social life and close relationship domains compared to those with GAD and MDD.
- SAD was compared to GAD and MDD on the degree of role impairment in the "home management" and "ability to work" domains; however, these comparisons were exploratory in nature and I had no directional hypotheses.

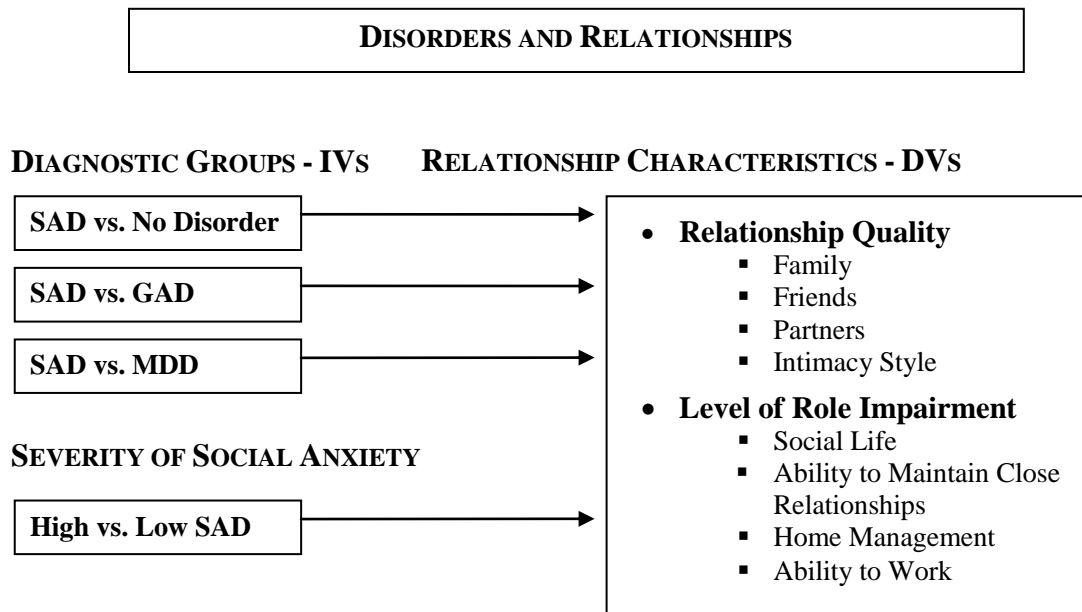
Severity of SAD.

- People with higher SAD severity would demonstrate lower support and higher stress on the relationship quality measures outlined above.
- People with higher SAD severity would demonstrate higher impairment in functioning in roles across the following domains: social life, close relationships, work, and home management.

Finally, I also examined individual relationship quality items in relation to the disorder groups. I completed these analyses for exploratory purposes and thus am not proposing directional hypotheses at this level of analysis. Given the differential influences across disorders

of sociodemographic variables such as sex and age, as well as the high frequency of comorbidity, all analyses took these covariates into account.

Figure 2



Note: I have labelled the disorder groups as IVs and the relationship variables as DVs, but it should be noted that these relationships are in fact interactional and bidirectional in nature, and these labels reflect a necessary simplification for analytic purposes.

Method

Sample

NCS-R.

The study utilized respondents from the National Comorbidity Survey Replication (NCS-R; Kessler & Merikangas, 2004), a probability sample of residents of the United States carried out ten years after the original National Comorbidity Survey (NCS). The NCS-R involved in-home, face-to-face interviews with a nationally representative sample of respondents aged 18 years and older between February 2001 and April 2003. As in the NCS (Kessler et al., 1994), an initial recruitment letter and study brochure were delivered prior to the meeting with a professional survey interviewer. Interviewers described the study and obtained verbal informed consent before the interview. The response rate was 70.9%. Non-response was accounted for by the sample weights, so generalizability remains very good since the sample is constructed to be representative of the entire United States, and not just of survey responders.

The NCS-R interview included two parts administered in one session. Part I included an interview involving the diagnostic assessment of 9,282 respondents. Part II included queries about risk factors, consequences, correlates, and additional disorders. Part II was administered to 5,692 of the 9,282 Part I respondents, including those Part I respondents with a lifetime disorder, plus an oversampling of those with clinically significant psychopathology (Kessler et al., 2004). Probability sampling is a strategy that ensures every person in the population has a chance of being selected into the sample, and thus actual probability of being included in the sample can be determined. This method makes it possible to produce unbiased estimates of population totals by applying weights to sampled units according to their probability of selection. The NCS-R data are weighted to adjust for differential probabilities of selection of respondents within households, and for residual variation between sample and population distributions on geographic and

sociodemographic variables in the 2000 US Census. An additional weight was used in the Part II sample to adjust for differences in probability of selection into that subsample. The following decision rules apply when selecting the weight to use. When using only variables from Part I, the "finalp1w" weight variable should be used. For analyses with only Part II or a combination of Part I and Part II variables, the Part II weight or "finalp2w" should be used. In this study, the Part II weight was used for all analyses. These procedures are described in more detail by Kessler and colleagues (2004).

Measures

Psychiatric diagnoses.

The diagnostic instrument used in the NCS-R was the World Health Organization (WHO) Composite International Diagnostic Interview (CIDI-3.0; Kessler & Ustun, 2004). The CIDI is a structured interview administered by extensively trained lay-interviewers. These interviewers were trained by a SCID Training Team via an expanded training program created by the developers of the SCID (Haro et al., 2006). This program included the use of SCID training tapes and manuals, involving approximately 30 hours of self study, followed by 40 hours of group training delivered by trained SCID trainers. Ongoing quality control protocols were implemented throughout the field period. Disorders were assessed according to the diagnostic criteria set out in the fourth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV; APA, 1994).

NCS-R respondents were administered the *social phobia* section if they endorsed a screening question for an interactional or performance fear that was excessive and caused substantial distress, nervousness, or avoidance. The GAD section questions were asked if respondents reported a history of being a worrier, being anxious most days, or more anxious than

others with the same problems. Depression questions were administered to respondents who endorsed screening items indicating a history of feeling sad, empty, depressed or discouraged about how things were going in their lives.

Blind re-interviews of a probability subsample of NCS-R respondents were completed to compare the CIDI 3.0 diagnoses to diagnoses made by clinicians based on the Structured Clinical Interview for DSM-IV (SCID; First, Spitzer, Gibbon, & Williams, 2002; Kessler et al., 2004). Clinical reappraisal interviews using the SCID found good concordance for 12 month disorders (AUC = 0.8 - 0.9) between CIDI and SCID diagnoses of anxiety and mood disorders (Haro et al., 2006; Kessler, Berglund, Demler, Jin, Merikangas, & Walters, 2005).

Independent (disorder) variables were coded from the NCS-R data to allow for dichotomous categorization of participants into presence/absence groups of SAD, GAD, major depression, and no 12-month history of disorder in order to fit the research questions of this study. I created these groups to be mutually exclusive, such that those in the social anxiety disorder group had a diagnosis of social anxiety disorder and did not have diagnoses of GAD or depression in the previous 12-month period (N = 465). Generalized anxiety disorder was considered present if an individual was diagnosed with GAD in the previous 12-month period, and not diagnosed with SAD or major depression in the previous year (N = 141). Major depression (MDD) was considered present if an individual was diagnosed with MDD in the previous 12-month period, but not GAD or SAD (N = 438). The creation of mutually exclusive diagnostic groups in this study allowed for clearer comparisons among the disorders. Importantly, other comorbid conditions did not merit exclusion. An individual was included in the no disorder category if he/she did not have any diagnoses in the previous 12-month period (N = 3345).

DSM-IV diagnostic hierarchy rules were applied in my variable construction whenever they were available in the NCS-R dataset. Under these rules, GAD was not diagnosed if the symptoms occurred exclusively in the context of major depressive disorder, and major depressive disorder was not diagnosed if symptoms were better accounted for by a psychotic disorder. Hierarchy rules did not apply to diagnoses of SAD.

I further categorized those with SAD based on severity of anxiety. Upon examining the distribution of symptom count scores, it was decided that a median split was a reasonable way to create the high/low SAD severity variable. Thus, High SAD severity is defined as 10+ symptoms, (N = 231 unweighted [51%]), and Low SAD severity includes respondents who endorsed 9 or fewer symptoms (N = 223 unweighted [49%]).

Inclusion/exclusion criteria.

Respondents were included in this study if they responded to the *social network* items in Part II of the NCS-R interview and they fit the diagnostic criteria for SAD, GAD, MDD, or no 12 month disorder. Individuals were excluded if they had comorbid social anxiety disorder with major depression or comorbid GAD, or if they endorsed *only* a mental disorder other than those listed above.

Relationship characteristics.

Relationship characteristics (dependent variables) were assessed in this study with a series of 15 questions in the *social network* section of the dataset, and eight items in the *marriage* section (see Appendices B and C). These items assessed current frequency of contact with people in the respondent's social network, as well as the respondent's perception of the level and quality of support received as a result of that contact. Three of the marriage section items were drawn from the Dyadic Adjustment Scale (DAS; Spanier, 1976). Relationship quality items in the NCS-

R measure both the positive (support) and negative (stress) aspects of social interactions (Aseltine & Kessler, 1993; Schuster, Kessler, & Aseltine, 1990). Kessler and colleagues collected these items from several sources in the social support literature and report they have not published any psychometric papers on these items (personal communication, R.C. Kessler, February 21, 2010). Overall internal consistency of the Social Network items used here was evaluated and reliability was good ($\alpha = .695$).

All individual measures that I created were defined on the basis of construct validity. For example, given that I wanted to measure support and stress across different types of relationships, such as families, it was appropriate to group family support items together to create a variable for that purpose. All variables that I developed were coded so that higher values indicate higher support or stress. Social network and marriage section items were summed to create perceived support and perceived stress scales, as described below. The individual support and stress item variables were summed (separately for family, friend and marital relationships) and a median split on the total scores was used to create my high/low support and stress measures.

In addition, I examined many social network and marriage items separately for exploratory purposes. For Social Network items 1 and 6 (frequency of contact with relative and with friends), responses of “every day”, “a few times a week”, and “a few times a month” were coded as “high contact.” “Once a month” and “less than once a month” were coded as “low contact.” For social network items 12 and 13 (Let your partner/another person know about your problems/worries), responses of “Always”, “Most of the time” and “Sometimes” were coded as “high.” “Rarely” and “Never” were coded as “low.” For Social Network items 2 and 7 (Rely on family/friend), “A lot” and “Some” were coded as “high” and “Little” and “Not at all” were

coded as “low.” For Social Network items 3 and 8 (Open up to family/friend), “A lot” and “Some” were coded as “high” and “Little” and “Not at all” were coded as “low.” For Social Network items 4 and 9 (Family/friend make too many demands), “Often” and “Some” were coded as “high” and “Rarely” and “Never” were coded as “low.” For Social Network items 5 and 10 (Family/friend argue with you), “Often” and “Some” were coded as “high” and “Rarely” and “Never” were coded as “low.” For Social Network items 14, 15, and 16 (Intimacy style variables), “A lot” and “Some” were coded as “high” and “Little” and “Not at all” were coded as “low.” SN 14 was also reverse coded to adjust for the opposing direction of the wording of that item as compared to SN 15 and SN 16.

For the marital satisfaction items (MR items), MR40g (how often partners quarrel), responses of “All”, “Most”, and “Some” were coded as “high” and “Rarely” and “Never” were coded as “low.” For all other MR items, responses of “A lot” and “Some” were coded as “high”, and “Little” and “Never” were coded as “low.”

Family relationship quality. Questions one through three of the Social Network section query the level and quality of contact with relatives (not including a partner) who live in a different household. Respondents are asked: (SN1) “How often do you talk on the phone or get together with relatives who do not live with you – (most every day, a few times a week, a few times a month, about once a month, or less than once a month)?” They are also asked: (SN2) “How much can you rely on relatives who do not live with you for help if you have a serious problem?”, and (SN3) “How much can you open up to relatives who do not live with you if you need to talk about your worries?” These items are scored on a four-point Likert scale: a lot, some, a little, not at all. Questions (SN4) “How often do your relatives make too many demands

on you?” and (SN5) “How often do your relatives argue with you – (often, sometimes, rarely, or never)?” assessed negative social interactions with family members.

I created a ‘Level of Family Support’ item by summing responses to the positive social network items, including questions SN1, SN2, and SN3. Cronbach's alpha for SN1-SN3 was .661. I created a ‘Level of Family Stress’ item by summing the applicable negative items (i.e., SN4 and SN5). Cronbach's alpha for SN4-5 was .656. Responses to both of these scales (Family Support and Family Stress) were divided at a median cut point to create dichotomous, high/low family support/stress variables.

Friendship quality. Friendship items in the Social Network section assessed frequency of contact (SN 6: “How often do you talk on the phone or get together with friends –most every day, a few times a week, a few times a month, about once a month, or less than once a month?”) as well as quality of contact (SN7: “How much can you rely on your friends for help if you have a serious problem?” and SN8: “How much can you open up to your friends if you need to talk about your worries – a lot, some, a little, or not at all?”). Questions SN9 (“How often do your friends make too many demands on you?”), and SN10 (“How often do your friends argue with you – often, sometimes, rarely, or never?”) assessed negative social interactions with friends.

I created a ‘Level of Friendship Support’ item by summing questions SN6, SN7 and SN8. Cronbach's alpha for SN6-8 was .737. I also created a ‘Level of Friendship Stress’ item by summing the negative items, SN 9 and SN10. Cronbach's alpha for SN9-10 was .590. Responses to these scales were divided at a median cut point to create dichotomous high/low friendship support/stress variables.

Marital relationship quality. Question SN12 of the Social Network section queries how often partners are a source of support: “When you have a problem or worry, how often do you let

your husband/wife/partner know about it?” Responses are scored from “always” to “never.” A preselected “couples” subsample of respondents was also asked several marriage-specific questions in the Marriage (MR) section of the interview: (MR41.1a) “How much does your spouse/partner really care about you?”; (MR41.1b) “How much does your spouse/partner understand the way you feel about things?”; (MR41.1c) “How much can you rely on your spouse/partner for help if you have a serious problem?”; and (MR41.1d) “How much can you open up to your spouse/partner if you need to talk about your worries?” Response choices for these questions include “a lot, some, a little, or not at all.”

I summed positive marital item scores to create an overall ‘Level of Marital Support’ measure, which was then dichotomously coded into a high/low variable based on a median split. Cronbach's alpha for SN12 and MR41_1a-d was .711.

Negative interactions with spouses/partners were assessed with the following NCS-R questions: (MR40g) “How often do you and your spouse/partner quarrel?” to which response options range from “all of the time” to “never.” Respondents were also asked: (MR41.2a) “How often does your spouse/partner make too many demands on you?” This question was scored on a four-point scale: often, sometimes, rarely, or never. These negative interaction items were summed to create a ‘Level of Marital Stress’ item, which was dichotomously coded into a high/low variable based on a median split. They were scored so that high scores indicate high levels of marital stress. Cronbach's alpha for MR41_2a-c and MR40g was .732.

Intimacy style. Questions 14 through 16 of the Social Network section assess how easy or difficult it is for respondents to get close to, trust and feel intimacy with other people. These items were adapted by NCS-R authors from Hazan and Shaver’s (1987) three category measure

(the *Attachment Self-Report*) originally developed to assess attachment in adult romantic relationships.

NCS-R respondents were asked to indicate how much the following three statements relate to them (a lot, some, a little, or not at all): (SN14) “I find it relatively easy to get close to other people. I am comfortable depending on others and having them depend on me. I don’t worry about being abandoned or about someone getting too close to me.”; (SN15) “I am somewhat uncomfortable being close to others; I find it difficult to trust them completely and difficult to depend on them. I am nervous when anyone gets too close to me.”; and (SN16) “I find that others are reluctant to get as close as I would like. I often worry that people who I care about do not love me or won’t want to stay with me. I want to merge completely with another person, and this desire sometimes scares people away.” These three social network questions were coded so that high values indicate high endorsement of the noted intimacy style. Given the different meaning represented by each intimacy style, they were examined separately and are referred to by the following category names: (SN14) Easy to Get Close; (SN15) Uncomfortable Being Close; and (SN16) Seeks Intense Closeness.

Role impairment. Impairment among individuals with past 12-month mental disorders was assessed in the NCS-R by an adaptation of the Sheehan Disability Scale (Leon et al., 1997), a scale appended to each diagnostic category in the NCS-R. This scale measured respondents’ levels of self-reported impairment, related to the specific disorder, across four domains during the month of the previous year that the disorder was most severe. Respondents were asked “How much did your concerns about (SYMPTOM) interfere with (ACTIVITY) during that time?” Activity domains included: home management ability (such as cleaning, shopping and maintaining the home); the ability to work; the ability to form and maintain close relationships

with other people, and social life. Each of these domains was rated by respondents on a 0–10 scale reflecting the extent to which symptoms interfered with the respondent's ability to function in the relevant area. Level of impairment was categorized as high versus low based on a mid-way split (0-5 = low; 6-10 = high) so as to define impairment consistently across groups.

Sociodemographics. The following sociodemographic variables were examined across diagnostic groups and included as covariates in regression analyses: sex, age at interview (recoded into four categories of 18-29, 30-44, 45-59, or 60+), race-ethnicity (recoded into four groups of non-Hispanic white, non-Hispanic black, Hispanic, and other), years of formal education (0–11 years, 12 years, 13–15 years, or 16 years or more), marital status (married/cohabiting, previously married [separated/divorced/widowed], and never married), current employment status (employee, student, homemaker, retired or other), family income (low income, low average income, high average income, high income), region (Northeast, Midwest, South and West) and urbanicity (metro, other urban and non-urban). Given the potential influence of these variables, in line with standard practice in research with the NCS-R (e.g., Kessler et al., 2005), these demographic variables were included as covariates in my analyses.

Results

Statistical Analyses

In the general approach to the analyses, cross tabulations were used to explore the demographic variables of interest across the four, mutually exclusive disorder groups (SAD, GAD, MDD, and no 12 month history of disorder).

Logistic regression analyses were used to compare the SAD group to the three diagnostic comparison groups (i.e., SAD vs. GAD, SAD vs. MDD, and SAD vs. no disorder) on the variables of interest. For each regression analysis, three models were tested: (1) unadjusted – described with odds ratios (OR); (2) adjusted for sociodemographics (age, sex, education, employment status, income, urbanicity, region, and, where appropriate, marital status) – Adjusted Odd Ratio-1 (AOR-1); and, (3) adjusted for sociodemographics and comorbidity with past-year mood, anxiety, childhood disorders, and substance use disorders – Adjusted Odds Ratio-2 (AOR-2).

Given that the unadjusted odds ratios (ORs) did not account for important population-level variables (i.e., demographics), I chose to define the true tests of significance with the AOR-1 analyses, although ORs and AOR-2s are also presented. Alpha was set at 0.05, two-tailed. Odds ratios in this case use Beta values to test for significance. In SUDAAN, the Wald F statistic gives us the *p*-value for each predictor (IV) based on the chi-square distribution. The magnitude of the relationships tested with odds ratios is reflected in the degree of departure of the ORs (and corresponding confidence intervals) from a value of 1.0, where the larger the departure, the greater the magnitude of the relationship and the lower the likelihood that the result is in fact a Type 1 error (i.e., a false positive).

Given the exploratory nature of several of this research questions, and my overarching aim to generate new areas of research, I opted to be more broad in examining possible

relationships. That is, although I completed several analyses, I decided to maintain the standard confidence intervals of 95% most often utilized in epidemiological research (rather than the more conservative but less often used option of 99% confidence intervals). Magnitude of the odds ratios was taken into account in interpreting significance, as was the breadth of the confidence interval range.

Logistic regressions are a common statistical technique employed when using large, epidemiological data sets. This statistical approach lends itself well to the requirements of the statistical software necessary to handle these sophisticated data sets. Logistic regressions also provide outcome data in a form that is clear, concise and readily interpretable. One potential cost of using logistic regressions is the dichotomization of variables, including outcome, potentially leading to a loss of information, or of some variability within that information. Conversely, a significant advantage of completing logistic regressions is that there are relatively few assumptions, and thus few requirements the data must conform to, compared to other methods of analysis. The key assumption that applies here is that the explanatory variables (the IVs) are not highly correlated with each other. If they were highly correlated, some authors might assert that it would be inappropriate to include them in the same model. That being said, if there is a strong case for expecting a relationship between an IV and outcome, others would support inclusion of those relevant variables in the model even if there is some overlap between IV variables (Tabachnik & Fidell, 1996). I evaluated variables before including them in the model to ensure this assumption was not violated.

Another important assumption of logistic regression is that, given the use of Maximum Likelihood Estimation (MLE) rather than Ordinary Least Squares (OLS) to derive parameters,

sample sizes must be large (usually 10 people per IV are required). If cell sizes fall below this, risk of Type II error (i.e., a false negative) is increased.

Finally, observations are assumed to be independent. This means that respondents cannot provide multiple observations at different time points. These data are cross sectional and each respondent responds only once in the NCS-R survey.

The NCS-R survey authors managed missing data via statistical weighting procedures. In this project, if data were missing for a select variable, that respondent was removed from the analysis. This practice was consistent across this project. This is why sample sizes vary somewhat between analyses. The percent missing on any one variable in this study was less than 5% across all variables explored, so there was no need to handle these cases via another method, such as multiple imputation procedures (Schafer & Graham, 2002).

Appropriate statistical weights were utilized to ensure the data are nationally representative. Analyses were completed using the Taylor Series Linearization method in the SUDAAN software system (Research Triangle Institute, 2001). This variance estimation procedure appropriately accounts for NCS-R stratification information made available in the public use dataset specifically for this purpose. All reported percentages are weighted and all reported sample sizes are unweighted (i.e., raw).

Demographic Characteristics

Cross tabulation and logistic regression analyses results for sociodemographic variables are presented in Table 1. Respondents with SAD were more likely to be female than were those with no disorder (58% vs. 51%, OR = 0.75; 95% CI = 0.58-0.96). Those with SAD were more likely to be male than were those with MDD (42% vs. 32%, OR = 1.51; 95% CI = 1.08-2.10). There were no significant differences for sex between those with SAD and those with GAD.

Those with SAD tended to be younger than those with no disorder and GAD, but not different in age distribution from those with MDD.

With respect to marital status, those with SAD were more likely than those with no disorder to be separated/widowed/divorced (OR = 1.31; 95% CI = 1.01-1.70) or never married (OR = 1.58; 95% CI = 1.30-1.93). There were no significant differences for marital status between those with SAD and the other clinical disorder groups.

Compared to those with no disorder, those with SAD were less likely to have a high income (OR = 0.56; 95% CI = 0.40-0.81). There were no significant differences for income between those with SAD and the other clinical groups.

When looking at employment status, those with SAD were less likely to be retired than were those with no disorder (OR = 0.26; 95% CI = 0.16-0.44). Those with SAD were more than twice as likely to have an employment status of “Other” than were those with no disorder (OR = 2.12; 95% CI = 1.62-2.77). The “other” category was comprised of respondents who endorsed one of the following response options: unemployed, looking for work, laid off, on maternity leave, on illness or sick leave, disabled, or other.

Table 1

Demographic Characteristics of Disorder Groups

	SAD (Overall N = 465)	No disorder (Overall N = 3345)		GAD (Overall N = 141)		Depression (MDD) (Overall N = 438)	
			SAD vs. No disorder		SAD vs. GAD		SAD vs. MDD
	N (%)	N (%)	OR (95% CI)	N (%)	OR (95% CI)	N (%)	OR (95% CI)
Sex							
Male	178 (41.7)	1508 (49.0)	0.75* (0.58-0.96)	44 (35.4)	1.31 (0.83-2.06)	135 (32.2)	1.51* (1.08-2.10)
Female	287 (58.3)	1837 (51.0)	1.00	97 (64.6)	1.00	303 (67.8)	1.00
Age, years							
18 to 29	136 (30.6)	644 (20.3)	1.00	24 (17.5)	1.00	120 (28.2)	1.00
30 to 44	169 (34.0)	992 (27.0)	0.84 (0.66-1.07)	50 (34.2)	0.57* (0.32-1.00)	163 (34.9)	0.90 (0.66-1.24)
45 to 59	115 (26.3)	960 (27.0)	0.65** (0.47-0.89)	46 (34.5)	0.44** (0.25-0.76)	116 (28.2)	0.86 (0.61-1.22)
60 or older	45 (9.1)	749 (25.6)	0.24*** (0.16-0.36)	21 (13.8)	0.38** (0.18-0.77)	39 (8.7)	0.96 (0.54-1.69)
Marital status							
Married or Cohabiting	232 (49.8)	2059 (58.9)	1.00	71 (51.6)	1.00	207 (44.3)	1.00
Separated/Widowed/ Divorced	114 (22.6)	688 (20.5)	1.31* (1.01-1.70)	50 (32.3)	0.73 (0.48-1.10)	118 (27.7)	0.73 (0.52-1.01)
Never Married	119 (27.6)	598 (20.6)	1.58*** (1.30-1.93)	20 (16.1)	1.77 (0.97-3.25)	113 (28.0)	0.88 (0.64-1.19)
Household income							
Poor Income	114 (26.7)	621 (21.3)	1.00	29 (20.7)	1.00	106 (26.5)	1.00
Low Average Income	108 (23.2)	702 (22.0)	0.84 (0.60-1.18)	33 (21.3)	0.85 (0.40-1.77)	91 (20.7)	1.11 (0.76-1.63)
High Average Income	149 (33.9)	1116 (33.8)	0.80 (0.60-1.07)	55 (40.7)	0.64 (0.34-1.21)	151 (35.7)	0.94 (0.63-1.42)
High Income	77 (16.3)	784 (23.0)	0.56** (0.40-0.81)	23 (17.4)	0.73 (0.39-1.36)	74 (17.1)	0.94 (0.57-1.55)
Education level							
0-11 years	74 (17.3)	455 (16.3)	1.00	19 (12.6)	1.00	59 (14.7)	1.00
12 years	150 (33.5)	994 (32.5)	0.97 (0.70-1.30)	37 (34.0)	0.72 (0.39-1.34)	134 (31.4)	0.91 (0.64-1.29)
13-15 years	147 (29.3)	977 (26.8)	1.03 (0.74-1.46)	45 (29.8)	0.72 (0.34-1.49)	133 (30.0)	0.83 (0.60-1.16)
>16 years	94 (20.01)	919 (24.4)	0.77 (0.55-1.08)	40 (23.7)	0.62 (0.32-1.18)	112 (23.9)	0.71 (0.48-1.06)

Table 1, Continued. Demographic Characteristics of Disorder Groups

	SAD	No disorder	SAD vs. No Disorder		GAD	Depression			
			OR		SAD vs. GAD		SAD vs. MDD		
	<i>N</i> (%)	<i>N</i> (%)	(95% CI)		<i>N</i> (%)	OR		(95% CI)	
Employment status									
Employed	323 (68.8)	2309 (66.1)	1.00		98 (71.4)	1.00	295 (68.1)	1.00	
Student	14 (3.7)	82 (2.8)	1.26 (0.62-2.57)		2 (1.5)	2.62 (0.48-14.24)	11 (3.4)	1.08 (0.43-2.69)	
Homemaker	26 (5.8)	188 (5.6)	1.01 (0.49-2.06)		9 (5.5)	1.10 (0.48-2.55)	29 (5.3)	1.08 (0.45-2.62)	
Retired	27 (4.9)	511 (17.9)	0.26*** (0.16-0.44)		18 (12.1)	0.42 (0.23-0.76)**	31 (7.0)	0.69 (0.38-1.23)	
Other	75 (16.8)	255 (7.6)	2.12*** (1.62-2.77)		14 (9.6)	1.81 (0.83-3.95)	72 (16.2)	1.03 (0.69-1.51)	
Ethnicity									
Hispanic	42 (10.4)	281 (10.7)	0.99 (0.68-1.43)		10 (8.3)	1.40 (0.56-3.49)	45 (10.3)	1.05 (0.72-1.55)	
Non-Hispanic black	74 (13.4)	399 (12.7)	1.08 (0.78-1.49)		14 (7.5)	2.02* (1.00-4.05)	53 (10.5)	1.34 (0.84-2.14)	
Other	27 (4.9)	146 (3.6)	1.40 (0.83-2.36)		6 (3.8)	1.44 (0.49-4.21)	24 (4.5)	1.13 (0.61-2.07)	
Non-Hispanic white	322 (71.4)	2519 (73.1)	1.00		111 (80.4)	1.00	316 (74.7)	1.00	
Region									
North East	84 (17.2)	608 (18.3)	1.00		32 (23.9)	1.00	82 (20.0)	1.00	
Midwest	124 (24.2)	933 (23.7)	1.08 (0.72-1.63)		35 (21.1)	1.59 (0.85-2.96)	120 (24.1)	1.17 (0.77-1.77)	
South	145 (31.6)	1090 (36.8)	0.91 (0.59-1.41)		48 (37.2)	1.18 (0.62-2.23)	143 (32.2)	1.14 (0.69-1.87)	
West	112 (27.0)	714 (21.2)	1.35 (0.92-1.98)		26 (18)	2.08* (1.14-3.82)	93 (23.8)	1.31 (0.85-2.03)	
Urbanicity									
Metro	194 (41.3)	1392 (39.6)	1.00		54 (37.0)	1.00	187 (41.5)	1.00	
Other Urban	171 (30.0)	1153 (27.9)	1.03 (0.79-1.35)		55 (30.8)	0.87 (0.59-1.30)	156 (29.3)	1.03 (0.78-1.36)	
Non-Urban	100 (28.7)	800 (32.5)	0.85 (0.59-0.22)		32 (32.3)	0.80 (0.38-1.68)	95 (29.2)	0.99 (0.66-1.49)	

Note: * $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$. All n's are unweighted and all percentages are weighted.

The only other significant difference in examining employment status was found between SAD and GAD. Compared to those with GAD, those with SAD were also less likely to be retired (OR = 0.42; 95% CI = 0.23-0.76).

There was only one significant result with respect to ethnicity: compared to those with GAD, those with SAD were twice as likely to be black (OR = 2.02; 95% CI = 1.00-4.05). There were no other significant differences for ethnicity between those with SAD and the other diagnostic groups.

There were no significant differences between diagnostic groups on Urbanicity. The only difference found on Region was between SAD and GAD; those with SAD were twice as likely to live in the West compared to those with GAD.

Most of the significant differences between diagnostic groups on demographic characteristics were found between respondents with SAD and those with no disorder. Overall, these sample characteristics are congruent with findings in other epidemiological studies, most notably with respect to sex, age, marital status and employment (Kessler, Chiu, Demler, & Walters, 2005; Shields, 2004). It is important to note that these comparisons on sociodemographic variables were not controlled for other demographic characteristics. Respondents with social anxiety were younger on average than those with no disorder and GAD. Younger people in general are less likely to be married, are more likely to be unemployed or in lower paying jobs, and, of course, less likely to be retired.

Given the differences on some demographic variables between diagnostic groups, for the remaining analyses, I only considered adjusted odds ratios in detail.

Perceived Relationship Quality

The results for relationship characteristics across groups are illustrated in Tables 2 and 3.

Relationship support. Logistic regressions were used to examine associations among diagnostic groups (SAD vs. GAD, SAD vs. MDD and SAD vs. no disorder) and level of family, friend and marital support. As can be seen in Table 2, as predicted, compared to those with no disorder, those with SAD were less likely to report high family support (AOR-1 = 0.69; 95% CI = 0.53-0.91). In my exploratory analysis, I found those with SAD reported lower family support than those with GAD, but this difference was not maintained after adjusting for demographics (OR-1 = 0.58; 95% CI = 0.36-0.95). Counter to prediction, there were no significant differences found between SAD and MDD on the family support measure after controlling for demographics.

As predicted, those with SAD reported lower friendship support than did those with no disorder (AOR-2 = 0.62; 95% CI = 0.41-0.94). Counter to prediction, there were no significant differences found between SAD and GAD on the measure of friendship support. In my exploration of the relationship between SAD and MDD and friendship support, I found no significant differences.

I expected those with SAD to report greater marital impairment than those with no disorder, but I found no differences between these two groups. The analyses comparing SAD to the other disorders were exploratory. When compared to those with GAD, after controlling for demographics, those with SAD were more likely to report high marital support (AOR-1 = 4.78; 95% CI = 1.00-22.81). Compared to those with MDD, when controlling for demographics, those with SAD were also more likely to report high marital support (AOR-1 = 2.74; 95% CI = 1.26-5.97). The MDD results were also maintained after controlling for comorbid disorders (AOR-2 = 2.92; 95% CI = 1.38-6.17). It should be noted that although only those who were married were included in the marital support and stress analyses, the use of sample weights ensures that the

results related to this group of married individuals remain representative of all married people in the United States.

Relationship stress. Logistic regression models were used to examine associations among diagnostic groups (SAD vs. GAD, SAD vs. MDD and SAD vs. no disorder) and level of family, friend and marital stress. The results comparing diagnostic groups on relationship stress are presented in Table 3.

I had predicted that those with SAD would report higher stress in family, friendship and marital relationships compared to those with no disorder. Consistent with prediction, those with SAD were more likely to report high family stress compared to those with no disorder (AOR-1 = 1.61; 95% CI = 1.16-2.23). For friendship and marital stress, results were significant at the unadjusted level only. For SAD compared to GAD, I expected higher friendship stress for those with SAD, but the other analyses were exploratory in nature. I found no significant differences between SAD and GAD on relationship stress. Compared to MDD, I expected those with SAD might report lower family stress than those with MDD. The friendship and marital analyses were exploratory. Again, I found no significant differences between SAD and MDD on friend or marital relationship stress.

Table 2

Logistic Regressions Assessing Disorders and Perceived Relationship Support

	SAD (N = 465)		No disorder SAD vs. No disorder			N (%)	GAD SAD vs. GAD			N (%)	Depression SAD vs. MDD		
	N (%)	N (%)	OR (95% CI)	AOR-1 (95% CI)	AOR-2 (95% CI)		OR (95% CI)	AOR-			OR (95% CI)	1 (95% CI)	AOR-2 (95% CI)
								1 (95% CI)	AOR-2 (95% CI)				
Family Support													
High	239 (54.8)	1933 (63.7)	0.69** (0.53-0.91)	0.74* (0.56-0.97)	0.85 (0.59-1.22)	90 (67.6)	0.58* (0.36-0.95)	0.63 (0.36-1.08)	0.58 (0.33-1.00)	240 (55.5)	0.98 (0.73-1.29)	1.02 (0.76-1.36)	1.07 (0.80-1.44)
Low	190 (45.2)	1123 (36.3)	1.00	1.00	1.00	46 (32.4)	1.00	1.00	1.00	185 (44.6)	1.00	1.00	1.00
Friendship Support													
High	216 (49.8)	1849 (59.8)	0.67*** (0.53-0.83)	0.60*** (0.48-0.76)	0.62* (0.41-0.94)	73 (55.0)	0.81 (0.44-1.50)	0.84 (0.45-1.59)	0.80 (0.42-1.51)	248 (59.5)	0.68 (0.46-1.00)	0.76 (0.50-1.17)	0.76 (0.49-1.20)
Low	212 (50.2)	1203 (40.2)	1.00	1.00	1.00	64 (45.0)	1.00	1.00	1.00	176 (40.6)	1.00	1.00	1.00
Marital Support													
High	54 (63.7)	579 (71.2)	0.71 (0.39-1.28)	0.89 (0.47-1.68)	1.21 (0.57-2.54)	14 (51.6)	1.65 (0.54-4.99)	4.78* (1.00-22.81)	4.93 (0.68-35.56)	43 (50.3)	1.73 (0.87-3.43)	2.74** (1.26-5.97)	2.92** (1.38-6.17)
Low	34 (36.4)	257 (28.8)	1.00	1.00	1.00	14 (48.4)	1.00	1.00	1.00	47 (49.7)	1.00	1.00	1.00

* $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$. Note: All n 's are unweighted and all percentages are weighted.

OR: Unadjusted odds ratio

AOR-1: Adjusted odds ratio for sociodemographics (age, sex, education, employment status, income, urbanicity, region, and, where appropriate, marital status)

AOR-2: Adjusted odds ratio for sociodemographics and comorbidity with other past-year disorders (any mood, any anxiety other than SAD, any childhood disorder, and any substance disorder).

Table 3

Logistic Regressions Assessing Disorders and Perceived Relationship Stress

	SAD		No disorder					GAD					Depression		
	N (%)	N (%)	SAD vs. No disorder			N (%)	SAD vs. GAD			N (%)	SAD vs. MDD				
			OR (95% CI)	AOR-1 (95% CI)	AOR-2 (95% CI)		OR (95% CI)	AOR-1 (95% CI)	AOR-2 (95% CI)		OR (95% CI)	AOR-1 (95% CI)	AOR-2 (95% CI)		
Family Stress															
High	268 (61.7)	1576 (47.1)	1.81*** (1.36-2.40)	1.61** (1.16-2.23)	1.19 (0.86-1.63)	80 (57.9)	1.17 (0.72-1.92)	1.21 (0.74-1.97)	1.19 (0.74-1.92)	265 (61.5)	1.01 (0.75-1.35)	1.07 (0.82-1.40)	.98 (0.74-1.30)		
Low	161 (38.3)	1491 (52.9)	1.00	1.00	1.00	57 (42.1)	1.00	1.00	1.00	161 (38.5)	1.00	1.00	1.00		
Friendship Stress															
High	277 (66.0)	1839 (57.3)	1.44* (1.07-1.94)	1.26 (0.88-1.80)	1.17 (0.82-1.68)	81 (57.7)	1.42 (0.98-2.06)	1.39 (0.92-2.09)	1.37 (0.91-2.05)	289 (68.9)	0.87 (0.58-1.31)	0.91 (0.59-1.39)	0.88 (0.58-1.34)		
Low	152 (34.1)	1228 (42.7)	1.00	1.00	1.00	57 (42.3)	1.00	1.00	1.00	137 (31.1)	1.00	1.00	1.00		
Marital Stress															
High	63 (64.5)	511 (51.2)	1.73** (1.15-2.61)	1.29 (0.79-2.11)	0.96 (0.47-1.99)	21 (68.8)	0.82 (0.28-2.44)	0.36 (0.10-1.26)	0.35 (0.10-1.19)	59 (65.9)	0.94 (0.54-1.63)	0.69 (0.37-1.29)	0.70 (0.38-1.29)		
Low	35 (35.5)	404 (48.8)	1.00	1.00	1.00	7 (31.2)	1.00	1.00	1.00	32 (34.1)	1.00	1.00	1.00		

* $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$. Note: All n 's are unweighted and all percentages are weighted.

OR: Unadjusted odds ratio

AOR-1: Adjusted odds ratio for sociodemographics (age, sex, education, employment status, income, urbanicity, region, and, where appropriate, marital status)

AOR-2: Adjusted odds ratio for sociodemographics and comorbidity with other past-year disorders (any mood, any anxiety other than SAD, any childhood disorder, and any substance disorder).

Severity of SAD and relationship quality. Logistic regression models were used to examine associations among severity of SAD and level of family, friend and marital support and stress. The comparisons of high and low SAD severity subgroups are presented in Tables 4 and 5. There was only one significant finding in these analyses. Consistent with my hypothesis, those with high SAD severity were significantly more likely to report high friendship stress (AOR-1 = 2.06; 95% CI = 1.29-3.20). This result remained significant after controlling for demographics and comorbidity (AOR-2 = 2.22; 95% CI = 1.34-3.68). Although differences had been predicted, I found no significant differences between high and low severity SAD groups on measures of family, friend and marital support, or family and marital stress.

Diagnosis and Role Impairment

Logistic regression models were used to examine associations among diagnostic comparison groups (SAD vs. GAD, and SAD vs. MDD) and role impairment (i.e., Home Management, Ability to Work, Ability to Maintain Close Relationships, Social Life).

Table 4

Logistic Regressions Assessing Severity of SAD and Perceived Relationship Support

			SAD Severity		
<i>N (%)</i>			High/Low OR (95% CI)	High/Low AOR-1 (95% CI)	High/Low AOR-2 (95% CI)
Family Support	High SAD	Low SAD			
	High	Low			
	110 (49.7)	118 (60.3)	0.65 (0.41-1.02)	0.79 (0.47-1.33)	0.79 (0.46-1.35)
	98 (50.3)	84 (39.7)			
Friend Support	High SAD	Low SAD			
	High	Low			
	101 (48.2)	108 (52.5)	0.84 (0.57-1.26)	0.89 (0.54-1.46)	0.89 (0.53-1.50)
	106 (51.8)	94 (47.5)			
Marital Support	High SAD	Low SAD			
	High	Low			
	22 (63.8)	29 (62.7)	1.05 (0.33-3.31)	0.76 (0.16-3.70)	1.05 (0.15-7.35)
	16 (36.2)	17 (37.3)			

* $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$. Note: All n 's are unweighted and all percentages are weighted.

OR: Unadjusted odds ratio

AOR-1: Adjusted odds ratio for sociodemographics (age, sex, education, employment status, income, urbanicity, region, and, where appropriate, marital status)

AOR-2: Adjusted odds ratio for sociodemographics and comorbidity with other past-year disorders (any mood, any anxiety other than SAD, any childhood disorder, and any substance disorder).

Table 5

Logistic Regressions Assessing Severity of SAD and Perceived Relationship Stress

			SAD Severity			
<i>N (%)</i>			High/Low OR (95% CI)	High/Low AOR-1 (95% CI)	High/Low AOR-2 (95% CI)	
Family Stress	High SAD	Low SAD				
	High	137 (65.0)	120 (59.3)	1.28 (0.82-1.99)	1.31 (0.78-2.19)	1.34 (0.74-2.42)
	Low	71 (35.0)	82 (40.7)			
Friend Stress	High SAD	Low SAD				
	High	144 (71.4)	124 (62.1)	1.52 (0.98-2.36)	2.06** (1.29-3.20)	2.22** (1.34-3.68)
	Low	64 (28.6)	78 (37.9)			
Marital Stress	High SAD	Low SAD				
	High	27 (59.0)	33 (69.1)	0.64 (0.23-1.80)	0.70 (0.21-2.31)	0.47 (0.10-2.21)
	Low	17 (41.0)	17 (30.9)			

* $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$. Note: All *n*'s are unweighted and all percentages are weighted.

OR: Unadjusted odds ratio

AOR-1: Adjusted odds ratio for sociodemographics (age, sex, education, employment status, income, urbanicity, region, and, where appropriate, marital status)

AOR-2: Adjusted odds ratio for sociodemographics and comorbidity with other past-year disorders (any mood, any anxiety other than SAD, any childhood disorder, and any substance disorder).

Table 6 illustrates these results. These data were not available for those with no disorder as the role impairment scales were only administered to those who met the criteria for a disorder.

Social and close relationship functioning. As outlined in Table 6, there were no significant differences in social and close relationship role impairment between respondents with SAD and those with GAD when controlling for demographics. However, once comorbidity was controlled for, those with SAD were, counter to prediction, significantly *less* likely to have high social impairment than were those with GAD (AOR-2 = 0.62; 95% CI = 0.41-0.96).

Also counter to prediction, those with SAD were found to be less likely than respondents with MDD to have high impairment in social functioning (AOR-2 = 0.58; 95% CI = 0.39-0.86) and close relationships (AOR-2 = 0.52; 95% CI = 0.36-0.74), even after controlling for demographics and comorbidity.

Home and work functioning. SAD was also compared to GAD and MDD on the degree of role impairment in the home management and ability to work domains; no directional hypotheses were made for these domains. I found that respondents with SAD were less likely to have high impairment in the home domain than were those with GAD when controlling for demographics (AOR-1 = 0.20; 95% CI = 0.11-0.39) and for comorbidity (AOR-2 = 0.14; 95% CI = 0.07-0.27). When controlling for demographics and comorbidity, those with SAD were less likely to have high role impairment in the work domain as well (AOR-2 = 0.52; 95% CI = 0.30-0.89).

Table 6

Logistic Regressions for Disorders and Role Impairment

Type of Impairment	SAD		SAD vs. GAD			SAD vs. MDD			
	N (%)	N (%)	OR (95% CI)	AOR-1 (95% CI)	AOR-2 (95% CI)	N (%)	OR (95% CI)	AOR-1 (95% CI)	AOR-2 (95% CI)
Social									
High	140 (37.7)	43 (40.4)	0.89 (0.60-1.32)	0.75 (0.48-1.17)	0.62* (0.41-0.96)	197 (46.4)	0.70* (0.51-0.95)	0.67* (0.46-0.97)	0.58** (0.39-0.86)
Low	225 (62.3)	75 (59.6)	1.00	1.00	1.00	217 (53.6)	1.00	1.00	1.00
Close Relationship									
High	107 (29.6)	32 (26.5)	1.17 (0.75-1.82)	0.98 (0.55-1.73)	0.90 (0.51-1.59)	163 (38.6)	0.67* (0.48-0.93)	0.59** (0.42-0.84)	0.52*** (0.36-0.74)
Low	263 (70.4)	88 (73.5)	1.00	1.00	1.00	250 (61.5)	1.00	1.00	1.00
Home									
High	57 (13.5)	39 (35.3)	0.29*** (0.15-0.53)	0.20*** (0.11-0.39)	0.14*** (0.07-0.27)	192 (44.9)	0.19*** (0.14-0.27)	0.17*** (0.12-0.24)	0.15*** (0.10-0.21)
Low	314 (86.5)	80 (64.7)	1.00	1.00	1.00	223 (55.1)	1.00	1.00	1.00
Work									
High	80 (20.9)	27 (23.5)	0.86 (0.48-1.54)	0.64 (0.36-1.15)	0.52* (0.30-0.89)	145 (35.5)	0.48*** (0.36-0.63)	0.42*** (0.31-0.58)	0.39*** (0.28-0.53)
Low	284 (79.1)	87 (76.5)	1.00	1.00	1.00	254 (64.5)	1.00	1.00	1.00

* $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$. Note: All n's are unweighted and all percentages are weighted

OR: Unadjusted odds ratio; AOR-1: Adjusted odds ratio for sociodemographics (age, sex, education, employment status, income, urbanicity, region, and, where appropriate, marital status) AOR-2: Adjusted odds ratio for sociodemographics and comorbidity with other past-year disorders (any mood, any anxiety other than SAD, any childhood disorder, and any substance disorder).

Respondents with SAD were also less likely to have high impairment in the home domain (AOR-1 = 0.17; 95% CI = 0.12-0.24) and the work domain (AOR-1 = 0.42; 95% CI = 0.31-0.58) compared to those with MDD. These results maintained significance after controlling for demographics and comorbidity (Home AOR-2 = 0.15; 95% CI = 0.10-0.21; Work AOR-2 = 0.39; 95% CI = 0.28-0.53).

To summarize, it was expected that SAD would have the greatest level of impairment in the social functioning and close relationship domains, as compared to those with GAD and MDD; however, the opposite was found. Those with SAD reported less impairment than did those with GAD in the social domain after adjusting for demographics and comorbidity. There was no difference found between SAD and GAD in impairment in close relationships. Compared to those with MDD, those with SAD were less impaired in social and close relationship domains, even after controlling for demographics and comorbidity.

SAD Severity and Role Impairment

As can be seen in Table 7, overall, those with high SAD severity had higher role impairment in all domains than did those with low SAD severity, but only the social and close relationship role domains remained significant after controlling for demographic variables. Those with high SAD severity were more likely than those with low SAD severity to have high role impairment in close relationships (AOR-1 = 2.23; 95% CI = 1.19-4.15), a result that remained significant after controlling for comorbidity (AOR-2 = 2.30; 95% CI = 1.17-4.52). Those with high SAD severity also had higher social impairment (AOR-1 = 3.18; 95% CI = 1.89-5.38) even after controlling for comorbidity (AOR-2 = 3.12; 95% CI = 1.72-5.67).

Table 7

Logistic Regressions for Severity of SAD and Role Impairment

Type of Impairment	<i>N</i> (%)		SAD Severity		
			High/Low	High/Low	High/Low
			OR (95% CI)	AOR-1 (95% CI)	AOR-2 (95% CI)
Social	High SAD	Low SAD			
High	89 (48.3)	40 (24.5)			
Low	93 (51.7)	125 (75.6)	2.89*** (1.62-5.16)	3.18*** (1.89-5.38)	3.12*** (1.72-5.67)
Close Relation	High SAD	Low SAD			
High	66 (37.1)	34 (21.0)			
Low	116 (62.9)	136 (79.0)	2.22* (1.10-4.47)	2.23** (1.19-4.15)	2.30* (1.17-4.52)
Home	High SAD	Low SAD			
High	35 (18.3)	19 (8.5)			
Low	148 (81.7)	151 (91.5)	2.40* (1.19-4.82)	1.98 (0.85-4.61)	1.53 (0.58-4.00)
Work	High SAD	Low SAD			
High	50 (26.7)	24 (13.6)			
Low	131 (73.3)	142 (86.5)	2.33*** (1.44-3.77)	1.90 (0.98-3.68)	1.57 (0.78-3.16)

* $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$. Note: All *n*'s are unweighted and all percentages are weighted.

OR: Unadjusted odds ratio

AOR-1: Adjusted odds ratio for sociodemographics (age, sex, education, employment status, income, urbanicity, region, and, where appropriate, marital status)

AOR-2: Adjusted odds ratio for sociodemographics and comorbidity with other past-year disorders (any mood, any anxiety other than SAD, any childhood disorder, and any substance disorder).

Intimacy Style

The logistic regression results for diagnostic groups and intimacy style are outlined in Table 8.

Easy to get close. In line with prediction, those with SAD were less likely to find it easy to get close to others compared to those with no disorder (AOR-1 = 0.52; 95% CI = 0.40-0.67). These results were sustained after controlling for comorbidity (AOR-2 = 0.57; 95% CI = 0.42-0.77).

Compared to those with GAD, those with SAD were less likely to find it easy to get close to others (AOR-1 = 0.61; 95% CI = 0.41-0.91), even after controlling for comorbidity (AOR-2 = 0.63; 95% CI = 0.42-0.95).

Compared to those with MDD, those with SAD were less likely to find it easy to get close to others (AOR-1 = 0.66; 95% CI = 0.49-0.88); results remained significant after controlling for comorbidity (AOR-2 = 0.68; 95% CI = 0.51-0.91).

Uncomfortable being close. Compared to those with no disorder, those with SAD were more likely to feel uncomfortable being close with others (AOR-1 = 4.53; 95% CI = 3.43-5.99). These results were maintained after controlling for comorbidity (AOR-2 = 2.69; 95% CI = 1.96-3.71).

Compared to those with GAD, those with SAD were more likely to find it uncomfortable being close with others (AOR-1 = 2.31; 95% CI = 1.42-3.76). These results were also maintained after controlling for comorbidity (AOR-2 = 2.19; 95% CI = 1.22-3.94).

Compared to those with MDD, those with SAD were more likely to find it uncomfortable being close with others (AOR-1 = 2.13; 95% CI = 1.53-2.95). These results remained significant after controlling for comorbidity (AOR-2 = 1.98; 95% CI = 1.43-2.75).

Table 8

Logistic Regressions Assessing Past-year Disorders and Intimacy Style

SAD		No disorder			GAD				Depression				
		SAD vs. No disorder			SAD vs. GAD				SAD vs. MDD				
		OR	AOR-1	AOR-2					OR	AOR-1	AOR-2		
		(95%	(95%	(95%					(95%	(95%	(95%		
		CI)	CI)	CI)					CI)	CI)	CI)		
<i>N</i> (%)		<i>N</i> (%)			<i>N</i> (%)	CI)	CI)	CI)	<i>N</i> (%)	CI)	CI)	CI)	
Easy to get close to others													
High	254 (55.0)	2363 (71.2)	0.49*** (0.40-0.62)	0.52*** (0.40-0.67)	0.57*** (0.42-0.77)	97 (70.0)	0.53** (0.36-0.77)	0.61* (0.41-0.91)	0.63* (0.42-0.95)	285 (66.8)	0.61* (0.45-0.83)	0.66** (0.49-0.88)	0.68** (0.51-0.91)
Low	210 (45.0)	962 (28.8)	1.00	1.00	1.00	43 (30.0)	1.00	1.00	1.00	150 (33.2)	1.00	1.00	1.00
Uncomfortable being close													
High	234 (50.0)	692 (18.1)	4.54*** (3.60-5.73)	4.53*** (3.43-5.99)	2.69*** (1.96-3.71)	48 (31.2)	2.21*** (1.47-3.30)	2.31*** (1.42-3.76)	2.19** (1.22-3.94)	149 (33.3)	2.01*** (1.45-2.78)	2.13*** (1.53-2.95)	1.98*** (1.43-2.75)
Low	231 (50.0)	2642 (82.0)	1.00	1.00	1.00	92 (68.8)	1.00	1.00	1.00	288 (66.8)	1.00	1.00	1.00
Seeks intense closeness													
High	93 (19.9)	213 (5.2)	4.50*** (3.00-6.74)	4.43*** (2.82-6.96)	2.38** (1.36-4.18)	30 (20.4)	0.97 (0.63-1.48)	0.86 (0.54-1.37)	0.80 (0.52-1.23)	75 (15.8)	1.32 (.96-1.82)	1.38* (1.01-1.90)	1.22 (0.88-1.68)
Low	372 (80.1)	3111 (94.8)	1.00	1.00	1.00	110 (79.6)	1.00	1.00	1.00	362 (84.2)	1.00	1.00	1.00

* $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$. Note: All *n*'s are unweighted and all percentages are weighted.

OR: Unadjusted odds ratio

AOR-1: Adjusted odds ratio for sociodemographics (age, sex, education, employment status, income, urbanicity, region, and, where appropriate, marital status)

AOR-2: Adjusted odds ratio for sociodemographics and comorbidity with other past-year disorders (any mood, any anxiety other than SAD, any childhood disorder, and any substance disorder).

Seeks intense closeness. A relatively low proportion of respondents in all groups endorsed experiencing a desire to seek intense closeness with others. In spite of this, there were some differences across the diagnostic groups. Compared to those with no disorder, those with SAD were more likely to seek intense closeness with others (AOR-1 = 4.43; 95% CI = 2.82-6.96). These results were maintained after controlling for comorbidity (AOR-2 = 2.38; 95% CI = 1.36-4.18). There were no significant differences between those with SAD and GAD on the intimacy style characterized by seeking intense closeness. When controlling for demographics, those with SAD were more likely than those with MDD to seek intense closeness with others (AOR-1 = 1.38; 95% CI = 1.01-1.90).

I had hypothesized that difficulty with intimacy would be associated with all disorders examined, and that these effects would be greatest for those with SAD. These hypotheses were generally supported overall.

SAD severity and intimacy style. Table 9 outlines the logistic regression results for intimacy style for those with high versus low severity of SAD. As expected, those with high SAD severity were less likely to be rate highly on the “Easy to Get Close” variable, and more likely to be high on the “Uncomfortable Being Close” and “Seeks Intense Closeness” variables than were those with low SAD severity. These results remained significant after controlling for demographics and comorbidity across the “Easy to Get Close” and “Uncomfortable Being Close” styles. SAD severity and the "Seeks Intense Closeness" intimacy style were not significantly related once the odds ratios were adjusted to account for demographic variables.

Table 9

Logistic Regression Assessing Severity of SAD and Intimacy Style

	N (%)		SAD Severity		
			High/Low	High/Low	High/Low
			OR (95% CI)	AOR-1 (95% CI)	AOR-2 (95% CI)
Easy to get close	High SAD	Low SAD			
High	101 (46.6)	139 (62.7)	0.52*** (0.36-0.75)	0.49** (0.32-0.76)	0.50*** (0.33-0.75)
Low	125 (53.4)	78 (37.3)	1.00	1.00	1.00
Uncomfortable being close	High SAD	Low SAD			
High	134 (59.7)	91 (40.8)	2.14*** (1.37-3.35)	2.15** (1.22-3.77)	2.24*** (1.25-3.99)
Low	92 (40.4)	127 (59.2)	1.00	1.00	1.00
Seeks intense closeness	High SAD	Low SAD			
High	55 (24.2)	34 (15.1)	1.79* (1.02-3.16)	1.35 (0.68-2.66)	1.41 (0.71-2.81)
Low	171 (75.8)	184 (84.9)	1.00	1.00	1.00

* $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$. Note: All n's are unweighted and all percentages are weighted.

OR: Unadjusted odds ratio

AOR-1: Adjusted odds ratio for sociodemographics (age, sex, education, employment status, income, urbanicity, region, and, where appropriate, marital status)

AOR-2: Adjusted odds ratio for sociodemographics and comorbidity with other past-year disorders (any mood, any anxiety other than SAD, any childhood disorder, and any substance disorder).

Diagnosis and Individual Social Network Items

To explore scale items at a more detailed level, logistic regression results for the diagnostic groups and individual relationship items are presented in Tables 10 through 12.

Family relationship items. As outlined in Table 10, compared to those with no disorder, those with SAD were, as predicted, less likely to open up to relatives (AOR-1 = 0.61; 95% CI = 0.49-0.77), and they were more likely to argue with relatives (AOR-1 = 1.64; 95% CI = 1.13-2.39) and feel relatives make too many demands of them.

Compared to GAD, those with SAD were less likely to open up to relatives (AOR-2 = 0.50; 95% CI = 0.28-0.90). No other family item comparisons between SAD and GAD or MDD were significant.

Friendship items. With respect to friendship, as can be seen in Table 11, all of the significant results were found in comparisons between those with SAD and those with no disorder. Those with SAD were significantly less likely to have contact with friends (AOR-1 = 0.63; 95% CI = 0.48-0.84), open up to friends (AOR-2 = 0.57; 95% CI = 0.38-0.86), and report they could rely on friends (AOR-1 = 0.70; 95% CI = 0.53-0.92) than were those with no disorder. Those with SAD reported they were more likely to argue with friends and feel friends make too many demands of them than were those with no disorder, but these results dissolved once demographics were taken into account.

Although it was expected that there would be differences between SAD and the other disorder groups on the individual friendship support and stress items, there were no significant results for friendship when comparing SAD to those with MDD or GAD once demographics were taken into account.

Table 10

Logistic Regressions Assessing Past-year Disorders and Family Relationship Quality Items

	SAD		No disorder			GAD				Depression			
	N (%)	N (%)	SAD vs. No disorder			SAD vs. GAD			SAD vs. MDD				
			OR (95% CI)	AOR-1 (95% CI)	AOR-2 (95% CI)	OR (95% CI)	AOR-1 (95% CI)	AOR-2 (95% CI)	OR (95% CI)	AOR-1 (95% CI)	AOR-2 (95% CI)		
Talk with relatives													
High	304 (68.9)	2339 (75.9)	0.70* (0.50-0.98)	0.80 (0.56-1.12)	1.06 (0.70-1.59)	109 (77.9)	0.63 (0.33-1.21)	0.76 (0.36-1.62)	0.69 (0.29-1.63)	303 (69.8)	0.96 (0.66-1.39)	1.07 (0.74-1.55)	1.13 (0.78-1.64)
Low	125 (31.1)	728 (24.1)	1.00	1.00	1.00	28 (22.2)	1.00	1.00	1.00	123 (30.2)	1.00	1.00	1.00
Rely on relatives													
High	339 (78.4)	2524 (83.1)	0.74* (0.56-0.98)	0.82 (0.60-1.11)	1.11 (0.67-1.86)	104 (77.5)	1.06 (0.63-1.77)	1.14 (0.56-2.31)	1.17 (0.58-2.37)	341 (80.7)	0.87 (0.58-1.29)	0.96 (0.62-1.48)	1.01 (0.66-1.57)
Low	90 (21.6)	536 (16.9)	1.00	1.00	1.00	33 (22.5)	1.00	1.00	1.00	84 (19.3)	1.00	1.00	1.00
Open up to relatives													
High	279 (66.1)	2349 (76.3)	0.61*** (0.48-0.76)	0.61*** (0.49-0.77)	0.69 (0.46-1.05)	106 (78.4)	0.54* (0.32-0.89)	0.49* (0.28-0.86)	0.50* (0.28-0.90)	297 (69.1)	0.87 (0.66-1.16)	0.86 (0.63-1.19)	0.88 (0.64-1.23)
Low	149 (33.9)	715 (23.7)	1.00	1.00	1.00	32 (21.6)	1.00	1.00	1.00	128 (31.0)	1.00	1.00	1.00

Table 10, *Continued**Logistic Regressions Assessing Past-year Disorders and Family Relationship Quality Items*

	SAD		No disorder			GAD				Depression			
	N (%)	N (%)	SAD vs. No disorder			N (%)	SAD vs. GAD			N (%)	SAD vs. MDD		
			OR (95% CI)	AOR-1 (95% CI)	AOR-2 (95% CI)		OR (95% CI)	AOR-1 (95% CI)	AOR-2 (95% CI)		OR (95% CI)	AOR-1 (95% CI)	AOR-2 (95% CI)
Relatives make demands													
High	151 (33.9)	709 (20.4)	2.00*** (1.55-2.58)	1.80*** (1.34-2.31)	1.36 (0.93-1.99)	49 (34.6)	0.97 (0.58-1.61)	0.88 (0.50-1.55)	0.87 (0.51-1.46)	137 (32.8)	1.05 (0.77-1.43)	1.07 (0.79-1.44)	0.96 (0.69-1.32)
Low	278 (66.1)	2360 (79.6)	1.00	1.00	1.00	88 (65.4)	1.00	1.00	1.00	289 (67.2)	1.00	1.00	1.00
Argue with relatives													
High	109 (23.1)	442 (13.5)	1.93*** (1.41-2.65)	1.64** (1.13-2.39)	1.34 (0.89-2.01)	35 (25.8)	0.86 (0.51-1.46)	0.77 (0.46-1.29)	0.81 (0.49-1.35)	118 (27.8)	0.78 (0.49-1.24)	0.81 (0.48-1.38)	71 (0.43-1.16)
Low	320 (76.9)	2625 (86.5)	1.00	1.00	1.00	103 (74.2)	1.00	1.00	1.00	308 (72.2)	1.00	1.00	1.00

* $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$. Note: All n 's are unweighted and all percentages are weighted.

OR: Unadjusted odds ratio

AOR-1: Adjusted odds ratio for sociodemographics (age, sex, education, employment status, income, urbanicity, region, and, where appropriate, marital status)

AOR-2: Adjusted odds ratio for sociodemographics and comorbidity with other past-year disorders (any mood, any anxiety other than SAD, any childhood disorder, and any substance disorder).

Table 11

Logistic Regressions Assessing Past-year Disorders and Friendship Quality Items

	SAD		No disorder			GAD				Depression			
	N (%)	N (%)	SAD vs. No disorder			N (%)	SAD vs. GAD			SAD vs. MDD			
			OR (95% CI)	AOR-1 (95% CI)	AOR-2 (95% CI)		OR (95% CI)	AOR-1 (95% CI)	AOR-2 (95% CI)	OR (95% CI)	AOR-1 (95% CI)	AOR-2 (95% CI)	
Talk with friends													
High	308 (71.4)	2446 (79.1)	0.66*** (0.52-0.83)	0.63** (0.48-0.84)	0.77 (0.52-1.15)	98 (71.5)	1.00 (0.60-1.66)	0.96 (0.56-1.64)	0.95 (0.56-1.60)	308 (73.6)	0.90 (0.58-1.39)	0.98 (0.61-1.57)	1.00 (0.62-1.63)
Low	121 (28.6)	621 (20.9)	1.00	1.00	1.00	40 (28.6)	1.00	1.00	1.00	118 (26.4)	1.00	1.00	1.00
Rely on friends													
High	303 (69.7)	2344 (75.6)	0.74* (0.58-0.94)	0.70** (0.53-0.92)	0.80 (0.51-1.25)	95 (66.5)	1.16 (0.75-1.78)	1.28 (0.75-2.19)	1.29 (0.75-2.21)	326 (78.5)	0.63* (0.43-0.93)	0.65 (0.42-1.01)	0.66 (0.42-1.06)
Low	125 (30.4)	710 (24.4)	1.00	1.00	1.00	42 (33.5)	1.00	1.00	1.00	98 (21.5)	1.00	1.00	1.00
Open up to friends													
High	307 (71.3)	2367 (76.4)	0.77 (0.59-1.01)	0.62*** (0.47-0.82)	0.57** (0.38-0.86)	106 (78.0)	0.70 (0.39-1.26)	0.64 (0.32-1.28)	0.60 (0.30-1.20)	328 (77.6)	0.72 (0.49-1.06)	0.76 (0.49-1.17)	.073 (0.46-1.18)
Low	119 (28.7)	689 (23.6)	1.00	1.00	1.00	32 (22.0)	1.00	1.00	1.00	97 (22.4)	1.00	1.00	1.00

Table 11, *Continued*

Logistic Regressions Assessing Past-year Disorders and Friendship Quality Items

	SAD		No disorder			GAD				Depression			
	N (%)	N (%)	SAD vs. No disorder			N (%)	SAD vs. GAD			N (%)	SAD vs. MDD		
			OR (95% CI)	AOR-1 (95% CI)	AOR-2 (95% CI)		OR (95% CI)	AOR-1 (95% CI)	AOR-2 (95% CI)		OR (95% CI)	AOR-1 (95% CI)	AOR-2 (95% CI)
Friends make demands													
High	72 (17.9)	328 (11.2)	1.73* (1.10-2.74)	1.64 (0.99-2.73)	1.02 (0.58-1.79)	24 (17.0)	1.06 (0.55-2.04)	1.20 (0.46-3.12)	1.07 (0.46-2.50)	74 (17.3)	1.04 (0.61-1.78)	1.17 (0.62-2.23)	1.06 (0.57-1.95)
Low	357 (82.1)	2739 (88.8)	1.00	1.00	1.00	114 (83.0)	1.00	1.00	1.00	352 (82.7)	1.00	1.00	1.00
Argue with friends													
High	55 (12.7)	246 (8.1)	1.66** (1.16-2.38)	1.40 (0.95-2.09)	0.92 (0.52-1.65)	9 (6.5)	2.10 (0.97-4.53)	2.03 (0.93-4.43)	1.81 (0.79-4.15)	56 (13.2)	0.96 (0.64-1.44)	0.92 (0.57-1.48)	0.84 (0.51-1.40)
Low	374 (87.3)	2822 (92.0)	1.00	1.00	1.00	129 (93.5)	1.00	1.00	1.00	370 (86.8)	1.00	1.00	1.00

*p ≤ .05. **p ≤ .01. ***p ≤ .001. Note: All n's are unweighted and all percentages are weighted.

OR: Unadjusted odds ratio
 AOR-1: Adjusted odds ratio for sociodemographics (age, sex, education, employment status, income, urbanicity, region, and, where appropriate, marital status)
 AOR-2: Adjusted odds ratio for sociodemographics and comorbidity with other past-year disorders (any mood, any anxiety other than SAD, any childhood disorder, and any substance disorder).

Marital relationship items. As outlined in Table 12, some characteristics of marital support were found to be higher for those with SAD when compared to the other disorder groups. Overall, most respondents in all groups provided quite positive ratings of their relationships with their marital partners. Those with SAD were significantly more likely to report they could rely on partners than were those with GAD (AOR-2 = 3.06; 95% CI = 1.21-7.73) and MDD (AOR-2 = 3.31; 95% CI = 1.58-6.92), even after comorbidity was taken into account.

Respondents with SAD were also more likely to quarrel with their partners than were those with no disorder (AOR-1 = 1.63; 95% CI = 1.02-2.64). Counter to prediction, there were no other differences found on the marital stress items between disorder groups.

In sum, for family relationships and friendships, most significant differences were found between those with SAD and those with no disorder. For marital relationships, some notable differences were found between SAD and the other clinical groups.

Table 12

Logistic Regressions Assessing Past-year Disorders and Marital Relationship Quality Items

	SAD		No disorder			GAD				Depression			
	N (%)	N (%)	SAD vs. No disorder			SAD vs. GAD				SAD vs. MDD			
			OR (95% CI)	AOR-1 (95% CI)	AOR-2 (95% CI)	N (%)	OR (95% CI)	AOR-1 (95% CI)	AOR-2 (95% CI)	N (%)	OR (95% CI)	AOR-1 (95% CI)	AOR-2 (95% CI)
Partner help you													
High	94 (96.1)	890 (97.8)	0.56 (0.15-2.11)	0.91 (0.23-3.59)	2.18 (0.09-51.17)	27 (96.4)	0.93 (0.09-9.30)	--	--	86 (95.6)	1.15 (0.30-4.50)	--	--
Low	4 (3.9)	25 (2.2)	1.00	1.00	1.00	1 (3.6)	1.00	1.00	1.00	5 (4.4)	1.00	1.00	1.00
Open up to partner													
High	93 (94.4)	856 (94.5)	0.98 (0.37-2.58)	1.00 (0.33-3.02)	0.67 (0.19-2.41)	25 (91.2)	1.62 (0.34-7.56)	1.62 (0.04-74.0)	--	79 (87.7)	2.35 (0.85-6.52)	3.91 (0.96-15.98)	2.63 (0.45-15.49)
Low	6 (5.6)	59 (5.5)	1.00	1.00	1.00	3 (8.8)	1.00	1.00	1.00	12 (12.3)	1.00	1.00	1.00
Quarrel with partner													
High	51 (46.0)	326 (30.5)	1.95** (1.18-3.22)	1.63* (1.01-2.64)	1.12 (0.56-2.23)	16 (47.6)	0.94 (0.34-2.60)	0.78 (0.27-2.26)	0.81 (0.25-2.64)	46 (37.4)	1.43 (0.87-2.35)	1.28 (0.73-2.26)	1.12 (0.59-2.12)
Low	60 (54.0)	703 (69.6)	1.00	1.00	1.00	18 (52.4)	1.00	1.00	1.00	59 (62.6)	1.00	1.00	1.00
Partner makes demands													
High	31 (28.4)	248 (25.8)	1.14 (0.63-2.07)	1.00 (0.54-1.86)	0.92 (0.37-2.31)	14 (43.9)	0.51 (0.19-1.34)	0.43 (0.12-1.57)	0.44 (0.10-2.00)	23 (26.4)	1.10 (0.58-2.09)	1.15 (0.55-2.39)	1.11 (0.51-2.38)
Low	68 (71.6)	668 (74.2)	1.00	1.00	1.00	14 (56.1)	1.00	1.00	1.00	68 (73.6)	1.00	1.00	1.00
Rely on partner (SN12)													
High	196 (92.4)	1737 (89.7)	1.41 (0.87-2.27)	1.20 (0.73-1.98)	0.77 (0.42-1.41)	60 (87.4)	1.76 (0.72-4.34)	2.79* (1.11-6.99)	3.06* (1.21-7.73)	169 (82.7)	2.55** (1.42-4.57)	3.58*** (1.82-7.07)	3.31** (1.58-6.92)
Low	21 (7.6)	196 (10.3)	1.00	1.00	1.00	10 (12.6)	1.00	1.00	1.00	33 (17.3)	1.00	1.00	1.00

Table 12, Continued

Logistic Regressions Assessing Past-year Disorders and Marital Relationship Quality Items

	SAD		No disorder			GAD				Depression			
	N (%)	N (%)	SAD vs. No disorder			SAD vs. GAD				SAD vs. MDD			
			OR (95% CI)	AOR-1 (95% CI)	AOR-2 (95% CI)	N (%)	OR (95% CI)	AOR-1 (95% CI)	AOR-2 (95% CI)	N (%)	OR (95% CI)	AOR-1 (95% CI)	AOR-2 (95% CI)
Partner cares about you													
High	96 (97.9)	905 (99.4)	0.28 (0.04- 1.91)	0.13 (0.00- 3.95)	0.14 (0.00- 30.05)	27 (96.4)	1.73 (0.14- 21.07)	0.45 (0.13- 1.57)	0.01*** (0.00- 0.02)	88 (97.5)	1.18 (0.24- 5.86)	--	--
Low	2 (2.1)	8 (0.6)	1.00	1.00	1.00	1 (3.6)	1.00	1.00	1.00	3 (2.5)	1.00	1.00	1.00
Partner understands you													
High	87 (87.8)	846 (93.1)	0.53 (0.23- 1.21)	0.70 (0.31- 1.56)	1.04 (0.33- 3.28)	23 (85.2)	1.25 (0.34- 4.57)	2.63 (0.65- 10.68)	4.31 (0.53- 35.00)	71 (82.0)	1.58 (0.72- 3.47)	2.21 (0.91- 5.34)	2.59 (0.77- 8.70)
Low	12 (12.2)	67 (6.9)	1.00	1.00	1.00	5 (14.8)	1.00	1.00	1.00	20 (18.0)	1.00	1.00	1.00
Partner criticizes you													
High	25 (23.7)	231 (22.2)	1.09 (0.64- 1.85)	1.15 (0.62- 2.16)	0.74 (0.31- 1.75)	11 (36.0)	0.55 (0.20- 1.51)	0.38 (0.09- 1.68)	0.39 (0.08- 1.82)	26 (27.8)	0.81 (0.37- 1.74)	0.84 (0.33- 2.15)	0.70 (0.20- 2.00)
Low	74 (76.3)	686 (77.8)	1.00	1.00	1.00	17 (64.0)	1.00	1.00	1.00	65 (72.2)	1.00	1.00	1.00
Partner lets you down													
High	20 (17.8)	112 (9.9)	1.98 (1.01- 3.87)*	1.42 (0.70- 2.91)	0.57 (0.14- 2.42)	9 (27.1)	0.58 (0.21- 1.58)	0.25 (0.06- 1.07)	0.19 (0.03- 1.19)	17 (16.3)	1.11 (0.57- 2.18)	0.80 (0.31- 2.02)	0.59 (0.19- 1.80)
Low	78 (82.2)	803 (90.2)	1.00	1.00	1.00	19 (72.9)	1.00	1.00	1.00	74 (83.7)	1.00	1.00	1.00

* $p \leq .05$. ** $p \leq .01$. *** $p \leq .001$. Note: All n 's are unweighted and all percentages are weighted.

OR: Unadjusted odds ratio

AOR-1: Adjusted odds ratio for sociodemographics (age, sex, education, employment status, income, urbanicity, region, and, where appropriate, marital status)

AOR-2: Adjusted odds ratio for sociodemographics and comorbidity with other past-year disorders (any mood, any anxiety other than SAD, any childhood disorder, and any substance disorder).

Table 13

Findings Related to Hypotheses: Expected Versus Actual Results

Analysis	Disorder Comparison Groups			
	SAD vs. NO DISORDER	SAD vs. GAD	SAD vs. MDD	HIGH vs. LOW SAD
SUPPORT				
Family Support	Expected: SAD Lower Found: Supported	Expected: Exploratory Found: No Differences	Expected: SAD Higher Found: Not Supported (No Differences)	Expected: High SAD Lower Found: No Differences
Friend Support	Expected: SAD Lower Found: Supported	Expected: SAD Lower Found: Not Supported (No Differences)	Expected: Exploratory Found: No Differences	Expected: High SAD Lower Found: No Differences
Marital Support	Expected: SAD Lower Found: Not Supported (No Differences)	Expected: Exploratory Found: SAD Higher	Expected: Exploratory Found: SAD Higher	Expected: High SAD Lower Found: No Differences
STRESS				
Family Stress	Expected: SAD Higher Found: Supported	Expected: Exploratory Found: No Differences	Expected: SAD Lower Found: Not Supported (No Differences)	Expected: High SAD Higher Found: No Differences
Friend Stress	Expected: SAD Higher Found: Supported, but only at OR Level	Expected: SAD Higher Found: Not Supported (No Differences)	Expected: Exploratory Found: No Differences	Expected: High SAD Higher Found: Supported
Marital Stress	Expected: SAD Higher Found: Supported, but only at OR Level	Expected: Exploratory Found: No Differences	Expected: Exploratory Found: No Differences	Expected: High SAD Higher Found: No Differences
ROLE IMPAIRMENT				
Social Impairment	N/A	Expected: SAD Higher Found: Opposite to Expectation	Expected: SAD Higher Found: Opposite to Expectation	Expected: High SAD Higher Found: Supported
Close Relationship Impairment	N/A	Expected: SAD Higher Found: No Differences	Expected: SAD Higher Found: Opposite to Expectation	Expected: High SAD Higher Found: Supported
Work Impairment	N/A	Expected: Exploratory Found: GAD Higher	Expected: Exploratory Found: MDD Higher	Expected: Exploratory Found: No Differences
Home Impairment	N/A	Expected: Exploratory Found: GAD Higher	Expected: Exploratory Found: MDD Higher	Expected: Exploratory Found: No Differences

Discussion

In this study, I examined how those with SAD compared to those with another anxiety disorder (generalized anxiety disorder; GAD), a mood disorder (major depressive disorder; MDD) and those with no disorder in the last 12 months, on measures of quality of relationships, as well as levels of functioning in various life domains. I was able to investigate multiple aspects of relationship quality across different types of relationships, including those with family, friends, and partners. To the best of my knowledge, this is the first study to investigate different social relationships in social anxiety disorder in comparison to groups with other psychiatric diagnoses, as well as to those with no disorder. For the most part, the group with no disorder reported higher levels of perceived support and less difficulty related to stress in the three different types of relationships than did those with SAD. The three clinical diagnostic groups appeared similar in acknowledging difficulties in interpersonal relationships.

More specifically, as predicted, those with SAD were found to be less likely than those with no disorder to report high family and friend support. Unexpectedly, there were no reported differences in marital support between those with SAD and those with no disorder. Also unexpectedly, those with SAD were more likely than the GAD and MDD groups to report high marital support.

Compared to those with no disorder, those with SAD were generally more likely to report high stress in their relationships, although demographic characteristics seem to play a significant role here. My hypotheses related to SAD compared to GAD and MDD on measures of stress in relationships were not supported.

When looking at severity of social anxiety, the only hypothesis to receive support was in the area of friendship stress: those with high SAD severity were more likely to report high friend

stress. Also as expected, those with high SAD severity reported higher role impairment in social and close relationship domains, and greater difficulties with intimacy. These key findings will be discussed, in turn.

Perceived Support and Stress

There are several possible reasons that a higher proportion of those with SAD report low family support compared to those with no disorder. First, it is possible that the perceived low level of support is just that: *perceived*, and potentially inaccurate, as has been shown in the literature often to be the case (Porter & Chambless, 2013). There may be something about those who are highly socially anxious that predisposes them not to be receptive to support when it is offered, perhaps by not perceiving it at all, not trusting its authenticity, or not feeling able to accept it. A number of studies have shown that those with mental disorders often perceive lower (or lower quality) support than is actually available (e.g., Davila & Beck, 2002; Wenzel, 2002). Alternatively, those with SAD have also have been found to prefer not to receive favours as a means of avoiding feeling indebted (Fernandez & Rodebaugh, 2011). Further research is necessary, however, to determine which factors might serve to improve social support (both perceived and received). This important information would aid in optimising treatment effectiveness related to improving relationships and level of overall functioning.

If support is indeed lower in families of those with SAD, it may not be the intention of family members of those with SAD to provide less support than do those with no disorder. It is possible that those with SAD come from families where parents' emotional resources are simply lower than ideal, as has been found in other research (e.g., Apter-Levy, Feldman, Vakart, Ebstein, & Feldman, 2013; Brumariu & Kerns, 2008). Family characteristics such as low cohesion or emotional bonding may have even played an etiologic role in the development of

SAD in the respondent (Arrindell, Emmelkamp, Monsma, & Brilman, 1983; Herba, et al., 2013; Johnson, LaVoie, & Mahoney, 2001; Lieb, et al., 2000). Alternatively, it may be that the resources of the family are typical of other families but disproportionate to the socially anxious person's elevated or unique needs.

Based on the results for those with SAD on perceived family support, and the lack of differences found between clinical groups, it may be that those with GAD or MDD experience similarly low levels of family support. Many of the reasons those with SAD may perceive low family support would also apply to those with GAD and MDD. For example, it may be that family dynamics are, in part, at play in the development and maintenance of psychopathology, rendering the family of origin unit a less available, less sought, or generally less optimal source of support to those with mental disorders. Although I found no significant differences in the measure of family support between those with SAD and those with GAD or MDD, it is worthy of mention that, in looking at individual family relationship items, a considerably lower proportion of those with SAD (66%) report they are able to open up to their relatives as compared to those with GAD (78%).

Within my findings, friendships appear to be the relationships most influenced by problems with social anxiety symptoms. Friend support was reported to be significantly lower for SAD compared to no disorder, and friend stress was higher for higher severity SAD. However, I was surprised to find no differences in level of perceived support from friendships between those with SAD and the other disorders examined, as was found by Rodebaugh (2009). In fact, Rodebaugh even assessed the association of SAD with perceived friendship quality using one of the same epidemiological datasets used here (i.e., the NCS-R). However, three key methodological differences may be at the root of these differing results. Unlike my design,

Rodebaugh examined the association of mental disorders with quality of friendships beyond that accounted for by family relationships. His aim was to use perceived family relationship quality to represent the variance that might be accounted for by general interpersonal problems. It is unclear how accurate it is to consider perceived family support as a representation of general interpersonal functioning, since many people from families that might be described as "dysfunctional" do carry on to have healthy interpersonal relationships outside of their families of origin. In addition, unlike my definition, Rodebaugh omitted the negative (i.e., stress) items in his definition of friendship quality, limiting the comprehensiveness of his conceptualization of friendships. Finally, Rodebaugh's statistical approach of Structural Equation Modeling (SEM) was quite different from mine, which utilized logistic regressions. Thus, although his study offers many improvements over the previous studies in this area, it remains limited to investigating solely friendships, with a more limited (i.e., solely positive) definition of friendship, and includes perceived family support as a general representation of interpersonal functioning.

On the other hand, it may be that those with mild social anxiety, although meeting the diagnostic criteria for social anxiety disorder, have quite specific social difficulties (e.g., public speaking) that interfere less with their friendships than they do with functioning in other domains, such as work or school performance where public performance demands arise more often. The severity of SAD results do support this, in part: friendship was the only type of relationship that showed differential stress results when comparing those with high versus low severity of SAD symptoms.

It is also notable that there were no differences found between those with SAD and those with no disorder on measures of marital support. Other epidemiological research has found that SAD is associated with reduced marital quality, but of course this research (Whisman et al.,

2000) was limited by the fact that it was based on a single question about marital satisfaction. As already discussed, based on some previous research, it does appear that people with SAD tend to marry even if their other relationships are few in number. Marital relationships may possess inherently protective qualities that make them less daunting to those who perceive relationships as social risks. In marriage, as compared to friendships, the stakes are higher, the commitment is (meant to be) solid, the interest in the relationship is openly mutual, and by definition of contract, the connection is intended to be permanent. All this leaves less room for doubt and fear of loss as a result of judgement or imperfections of a partner than may be the case in other social relationships. Transparency also tends to be higher in marital relationships in that it is quite normative for partners to discuss openly concerns and issues in their marriages with the aim to remedy them. This may serve as effective reassurance for those who are anxious about the quality of their interpersonal ties. This acceptance of mutual responsibility within a marriage may make this sort of union seem a safer place for socially anxious people (and people in general) than most other social relationships. It is important to note, however, as Alden and Taylor (2004) point out, that how partners of those with SAD perceive the quality of their marriages, and the support they receive within them, is a matter requiring further investigation.

In further support of the above, in the exploratory analyses, a higher proportion of those with SAD did report higher marital support than did those with GAD and MDD. These findings are not surprising, and are in line with Whisman's (2007) epidemiological findings highlighting the link between GAD and marital distress. It may be that those with SAD access partners for different types of support than do those with MDD or GAD. The socially anxious individual may 'need' her or his partner as a support in social situations, and may tend to pair with those who find social engagement easier by comparison so as to lessen their own social burden, or with

those who share a tendency to avoid social situations (Gordon, Heimberg, Montesi, & Fauber, 2012). Further research in this area might serve to illuminate the landscape on which those with social anxiety (and GAD or MDD) build their relationships.

In addition, the needs of socially anxious people may be less taxing than those with other anxiety or mood disorders, and they are not as likely a sudden shift in level of desired support. That is, social anxiety tends to have an early onset and be long-standing, and thus does not typically represent a change in demands in the relationship for their partners, whereas depression is often episodic and recurrent in nature (Kashdan & Herbert, 2001). Those with depression and GAD may lean on their partners in different or progressive ways, and in a more pervasive manner than do those with SAD. This would fit well with Yoon and Zinbarg's (2007) finding that individuals with GAD are more likely to enter into a committed, romantic relationship than are those without GAD, which they deemed reflective of the likelihood that GAD is characterized by heightened interpersonal dependency.

Partners may find this higher degree and intensity of required support taxing, and thus they may withdraw emotional support. This is certainly supported by the literature on depression and romantic attachments where maladaptive social support seeking such as excessive reassurance seeking has been found to be wearing on marital relationships (e.g., Davila, Bradbury, Cohan, & Tochluk, 1997). Other research on depression has found those with depression symptoms to be less effective in soliciting (and providing) social support in close relationships (Rook, Pietromonaco, & Lewis, 1994). Dugas and colleagues (1998) have also found that those with GAD tend to engage in maladaptive worry (as opposed to solution-focussed worry) about unlikely future events more than do others with clinical levels of anxiety. Providing support and reassurance for these perpetual types of worry may be more challenging

as a task that often falls on partners. In this study, it appears perceived marital support was largely based on perceived ability to rely on partners. A higher proportion of those with SAD (92%) reported such than did those with GAD (87%) or MDD (83%).

Turning now to the negative aspects of relationships, stress across family relationships was significantly higher for those with SAD when compared to those with no disorder. On the other hand, it was not higher for those with SAD than those with GAD or MDD. It is likely true that stress in the other clinical disorders across these relationships is also higher than stress for those with no disorder; however, these comparisons were not directly assessed here. It is known, though, that when internal resources are compromised by the presence of psychological stress or disorder, relationships often suffer. When we have a difficult or bad week, the pressure is felt by those around us. If every week is a somewhat bad week, it naturally follows that relationships will endure more stress than they would otherwise.

Looking more closely at the comparisons on stress in marital relationships, although the significance of the overall differences found between SAD and those with no disorder fell away once demographics were accounted for, it should be noted that the bulk of the difference between those with SAD and those with no disorder was related to the specific question on quarrelling. Negotiating disagreements has indeed been identified as an area of difficulty in those with clinical, and even subclinical, levels of depression (e.g., Beach, Martin, Blum, & Roman, 1993; Hammen, 1991). And social anxiety has been associated with negative communication patterns in romantic relationships (Wenzel, Graff-Dolezal, Macho, & Brendle, 2005). For instance, Davila and Beck (2002) found social anxiety to be associated with negative interpersonal styles in close relationships, such as lack of assertiveness, avoidance of emotional expression, and overreliance on others. Clinicians may want to explore in some detail how persons with SAD

(and other disorders) deal with conflicts and concerns within the context of their romantic relationships.

In all of the analyses completed that examined relationship quality as related to severity of SAD, only friendships stood out as influenced by severity of symptoms: those with high SAD were more likely to report high friendship stress. Given previous research findings on SAD and friendships, it does follow that friendships are most likely to suffer as social anxiety increases. Friendships tend to embody different rules and norms. They often come and go, rejection is more common, and they are more fluid in nature overall (e.g., Starr & Davila, 2008). The depth and extent of this commitment is often lower, and they tend to be less well defined. It may be that a compromised ability or desire to tolerate these areas of interpersonal uncertainty limit the success, or even prospects, of friendships for more highly socially anxious individuals. Further research in this area could assist clinicians in their work with highly anxious people in helping them acquire and navigate important and supportive relationships.

Counter to my expectation, SAD did not have the greatest level of impairment in the social life and close relationship domains compared to GAD and MDD. Those with SAD actually reported being less impaired than those with GAD in the social domain. And those with SAD reported less impairment in social and close relationship domains than did those with MDD. It may be that having greater deficits in other domains of functioning (as compared to those with SAD) makes those with GAD and MDD even more vulnerable to compromised social functioning than are those who only struggle with social anxiety. Alternatively, or additionally, many individuals diagnosed with SAD may have low severity of symptoms and thus may actually have low levels of functional impairment, especially since one can receive a diagnosis of SAD even if social fears are limited to only one type of situation. Further, as has been found

here, those with SAD reported greater support from marital relationships than did the other clinical groups. It may be that, for those who are in a romantic relationship, this form of support acts as a buffer and preserves functioning in the relationship-oriented domains. We also know that those with depression tend to see things in a more negative light; their perceptions of social support may be even less accurate as a result.

As we know, people with depression tend to withdraw and limit social contact with others as a function of the symptoms of depression. This tendency to turtle (emotionally and relationally) and thus to limit meaningful, close connections, may be more global, rather than being limited to shying away from a particular type of relationship (i.e., friendships, as appears to be the case in SAD). If this is true, a more severe degree of compromised functioning in social and relationship interpersonal domains would indeed be expected for those with depression. Given the expected specificity of role impairment for those with SAD, it is not surprising that both those with GAD and those with MDD reported greater impairment in home and work life functioning than did those with SAD.

As predicted, those with high SAD severity had higher role impairment across social and relationship domains compared to those with low SAD. (The work and home functioning results were initially significant but statistical significance fell away after adjusting for demographics and for comorbidity.) In fact, those with high SAD symptoms looked similar on the social and close relationship role impairment domains to those with depression. Thus, more severe social anxiety disorder symptoms are related to a more dramatic level of functional impairment in the interpersonal domains. Although this is not surprising, it draws to attention the fact that it may be necessary to examine in future research those with higher levels of social anxiety separately from those with lower severity SAD. Each disorder is comprised of people falling at various points

along a continuum of severity. Thus, the results when examining complete SAD (or GAD and MDD) groups may be underestimating the true level of functional impairment, especially for those with higher severity of SAD given that the diagnostic criteria for SAD are such that significant numbers of people are included who have social anxiety in a limited range of situations.

Intimacy Style

Compared to those with no disorder (5%) and those with depression (16%), a higher proportion of those with SAD (20%) were likely to seek intense closeness with others. If few people appear available for support, the breadth of needs that might normally be dispersed across an entire social network may fall onto a single person. Although understandable, this intense level of need and affiliation tends not to go over well in most relationships outside of a marital partnership.

Overall, a lower proportion of those with SAD (55%), and especially of those with high SAD severity (47%), demonstrated what would be considered a “secure” attachment style than did those with GAD (70%) or MDD (67%). That is, they were less likely to find it easy to get close to others, they were less likely to report feeling comfortable depending on others and having others depend on them, and/or they were more likely to worry about being abandoned or about someone getting too close to them. This particular finding may be a reflection of the otherwise low level of perceived support in the lives of those with SAD.

A considerably greater proportion of those with SAD (50%) were likely to report feeling uncomfortable being close with others, compared to those with no disorder (18%), GAD (31%) or MDD (33%). This intimacy style was described as finding it difficult to trust and depend on others, and feeling nervous allowing others to get close to them. This tendency toward a lack of

trust has been examined in research on the quality of friendships in clinical samples of socially anxious people (e.g., Porter & Chambless, 2014; Rotter, 1967; Schneier et al., 1994; Wittchen & Belock, 1996). It was suggested by these authors that those who are socially anxious may deem the risks of letting others get close to them too high and opt out of the venture altogether. If people do not take social risks, they may avoid painful outcomes, but they also lose all the benefits and buffers that can only be garnered from having social connections. Considering clients' intimacy styles when they present for treatment, as one measure of openness to, or readiness for change, may be an informative indicator from which to gauge clinical plans and expectations.

Clinical Implications

Overall, it appears that those with SAD experience more interpersonal stress than do those with no diagnosis. They perceive some room for improvement in levels of family support available, compared to those with no disorder. And those with more severe SAD perceive the greatest deficits in support in the area of friendships. Since we know that specific types of relationships are more likely to offer different types of support (Antonucci, Ajrouch, & Janevic, 1999; Connidis & Davies, 1990, 1992; Crohan & Antonucci, 1989; Felton & Berry, 1992) it is important that treatment providers assess for deficits in support and assist clients in the development of necessary skills and confidence building to access support across different types of relationships. This may be one of the most important ways to mitigate prognosis: by improving relationships and thus minimizing the compounding effects of disorder on level of functioning in general, and interpersonal functioning in particular.

If one can improve the quality of his or her social network, it follows that functioning will improve, and odds of developing comorbid disorders will decrease. Assessing particular

relational weak spots may be important in helping clinicians determine particular areas of vulnerability, especially with respect to comorbidity, for clients. Women with SAD, for example, have been found to have increased likelihood of developing secondary depression in general, and to have increased likelihood of abusing substances, particularly when family cohesion is low (Buckner & Turner, 2009). Friends, partners and family members often provide the kind of emotional support that acts as a protective factor against depression. However, solid family relations may play a uniquely important role in protecting against substance issues in women at risk for such. Men with SAD have also been found to be at increased risk for abusing substances. Given that social networks increase likelihood of healthy lifestyle choices (assuming it is a healthy social network, of course), it follows that the odds of slipping into a pattern of self-medicating with substances when left to one's own devices would be lower if social ties were strong. Thus, it may be that clinicians can be alerted to the most likely comorbid disorders for a particular client based on client characteristics, and a profile of strengths and deficits in specific areas of support, and that this information could inform clinical practice in important ways.

Early intervention appears to be a wise pursuit here, as well. Some authors (e.g., Biggs et al., 2009; Kendall & Ollendick, 2004) have suggested that the identification and treatment of peer relations difficulties among children and adolescents might assist in the prevention of onset of disorders in adolescence. Tackling relational issues earlier in life, through programs implemented in child treatment centres, or perhaps reaching an even broader group through school curricula, may yield important results in the long term. The challenge, as always with preventative interventions, is convincing policy-makers of the multiple benefits of addressing a need before the unnecessarily inflated need arises.

It may be that a community education focus on parenting in support of stronger relationships within families might be the ideal starting point for improving social functioning overall. Bowlby (1969) posited that children whose safety and protection needs were consistently met by their parents developed a secure attachment to their parents and that this base would be linked to the quality of subsequent close relationships. How one attached to primary caregivers in infancy also influences how they perceive themselves (esteem) and how they expect others to respond to them (confidence), directly linking anxiety level and interpersonal style. Thus, the link between disorder and difficulties with attachment (and by extension, relationships) is circular and potentially self-perpetuating. Disorder in this case leads to greater relational difficulties; relational difficulties complicate existing mental health issues and contribute to onset of further related issues. If we can intervene at the family level, that is, at the foundation point of developing our relational systems, we may have the most impact in the long run over mental health and interpersonal success.

Overall, possibly the most important finding of this study is the extent to which interpersonal problems are present in all of the disorders studied. This suggests a need for more attention to assessment of interpersonal functioning in clinical work in general, perhaps with a focus in psychological treatments on improving interpersonal functioning. Although Alden and her collaborators have done some unique and pivotal work in this area, there remain problematic gaps in the research on the social functioning of those with SAD and other disorders. In particular, research that examines *how* to secure and maintain close relationships over time is lacking. With the exception of one recent treatment study (i.e., Alden & Taylor, 2011) I could find no studies that examine and delineate for clinicians how they might assist patients with this social process, apart from the assertiveness and social skills training offered as part of some

cognitive-behavioural therapy (CBT) programs. In addition, there is a need to complete research on whether or not treatments focusing on interpersonal relationships offer any advantages over other forms of treatment. Alden's approach is an excellent model and has been shown to be effective; future work comparing it to other forms of treatment would be tremendously helpful.

Limitations

These results should be interpreted with a few limitations in mind. First, the cross-sectional and retrospective design does not allow for causal inferences to be made on the basis of these results. Prospective, longitudinal research is required to investigate the existence of causal associations between these disorders and relationship impairment. In this study, relationship characteristics have been conceptualized as consequences of psychopathology; however, the reciprocal nature of this association should not be underestimated. Psychopathology can and does influence relationships. At the same time, both the presence and quality of relationships have been shown to influence mental health.

Second, although highly trained interviewers gathered information from the NCS-R respondents, the interviewers were lay interviewers, and not clinicians. The use of clinicians has its benefits; however, the breadth and abundance of information accessed in this nationally representative sample would not have been possible had clinical raters been used. Clinical reliability interviews have found reasonably good concordance between CIDI and SCID DSM-IV diagnoses of anxiety and mood disorders. However, CIDI prevalence estimates have tended to be conservative relative to the SCID (Haro et al., 2006). Thus, the use of lay interviewers may have resulted in some underrepresentation in the disorder groups.

Respondents were only administered the social phobia section if they reported at least one social fear that was excessive and associated with substantial anxiety or avoidance. Thus,

those with milder social fears (even if multiple social fears) were not captured in the data. In this study, the DSM-IV diagnostic hierarchy rules were applied in the interest of being stringent about diagnostic classification. The screening questions and use of the hierarchy rules may have resulted in further underestimates of the clinical groups assessed here.

Respondent information about symptoms was recalled retrospectively. Although several strategies were put into place in the NCS-R to minimize recall errors, responses are subject to possible recall bias (Kessler & Ustun, 2004).

As is often a limitation in epidemiological studies, the limited amount of information gathered about some variables, such as the characteristics and quality of relationships in this case, should be noted. The number of questions in any epidemiological survey tends to be limited, by necessity; however, it would be ideal for future research to explore relationship issues in even more depth.

A final consideration relates to a commonality among the disorders studied here: all three disorders are associated with difficulties in relationships and encompass a measure of underlying distress. Future research might explore the relationship between current emotional distress (e.g., past 30 days, as assessed by the K10 in the NCS-R) and difficulties in relationships. An advantage this distress measure would add is that it measures current distress level (i.e., close to the time frame of the interpersonal measures). The diagnostic measure assesses 12 month diagnosis, and thus, some participants may have a recent (12-month) diagnosis but may not currently meet the criteria for disorder. It should also be noted that disorders (i.e., the associated distress) may have different impacts on relationships at different points in life. That is, distress may be complicated by age and its corresponding life tasks. For example, disorders may be particularly influential or impairing during crucial periods (e.g., in the young adult years when

establishing partner relationships, long term friendships and careers is paramount). Later in life, after some of these life tasks have been successfully navigated, these same disorders may have less impact on relationships.

Study Strengths

Although being bound to pre-existing questions is a limitation common to epidemiological data, the number and breadth of questions available to assess relationship quality in the NCS-R is also a notable strength in this study. I was able to explore several aspects of relationship quality across different relationship types (family, friends and romantic partners) in a large, nationally-representative sample, significantly improving upon what has been available in previous research. Most previous research on relationships in social anxiety disorder has been with clinical samples. This research adds to these findings by evaluating these relationships in a nationally representative sample.

This study also improves upon the available epidemiological literature in the area. In short, the epidemiological studies that have been completed to date either assess relationship quality but do not distinguish type of relationship (e.g., Shields, 2004), or they assess likelihood of relationships rather than their quality (i.e., Schneier et al., 1992; Lampe et al., 2003). There are few epidemiological studies that assess quality of relationships in the manner I sought to do. Whisman and colleagues (2000) did, and they found similar results to this study. That is, they found no association between SAD and friendship quality, and they found SAD was associated with reduced marital quality, even after controlling for comorbidity and demographics. Unfortunately, their results carry limited interpretive value for three reasons: first, they assessed relationship quality with partners and friends with a single question; second, they limited their investigation to respondents who self-identified as married; and third, they chose to run

unweighted analyses, limiting their ability to claim their results as nationally representative. Outside of this study, Rodebaugh (2009) offers the only improvement over previous epidemiological studies, although his investigation is limited to investigating friendships, and only the positive aspects thereof.

Future Research Directions

There are several key areas for future research focus that would hold tremendous clinical utility. Further exploration of family of origin characteristics of those with SAD and other mood and anxiety diagnoses, such as level of cohesion or emotional availability, bonding styles, sociability, and social skills may provide greater understanding of the role of family dynamics in the course of SAD (among other disorders), as well as their subsequent influence on perceptions of family support. That is, it would be useful to know how emotional and interactional patterns within the family cause, exacerbate or at least maintain mood and anxiety symptoms, and how they are related to relationship difficulties and potentially low levels of perceived family support later in life.

We know that anxiety influences communication in relationships, and it appears reasonable that it does so differentially across different types of relationships. Often anxious people appear edgy or aloof, unfriendly or unkind, yet these behaviours are borne out of anxiety rather than anger or apathy (Moscovitch et al., 2013). Helping persons with anxiety disorders to be more self-aware, both of their internal states as well as the interpersonal impressions they leave, may help them in developing relationships that they see as more supportive. Further research on communication styles within friendships for those with SAD could assist clinicians in their work with highly anxious people.

In marital relationships in particular, further studies of how partners of those with SAD perceive their marriages, and their partners' demands and needs would provide useful information within the clinical context (Kashdan, Ferssizidis et al., 2013). Particular emphasis may be well placed on exploring conflict management particular to those with SAD, as well as those with other disorders.

Research is also necessary to elucidate the factors that are most influential in creating barriers to accepting support. This important information would aid in optimising treatment effectiveness related to relationships and overall level of functioning.

Some of the results herein (e.g., my examination of role impairment) demonstrate that it may be necessary in future research to examine those with higher levels of social anxiety separately from those with lower severity SAD in order to accurately assess outcomes such as level of impairment.

In 2012, the National Institute of Mental Health in the US included the following point in its strategic plan: “Strategy 1.4 calls for the development, for research purposes, of new ways of classifying psychopathology based on dimensions of observable behavior and neurobiological measures. The Research Domain Criteria project (RDoC) has been launched by NIMH to implement this strategy. In brief, the effort is to define basic dimensions of functioning (such as fear circuitry or working memory) to be studied across multiple units of analysis, from genes to neural circuits to behaviors, cutting across disorders as traditionally defined. The intent is to translate rapid progress in basic neurobiological and behavioral research to an improved integrative understanding of psychopathology and the development of new and/or optimally matched treatments for mental disorders” (<http://www.nimh.nih.gov/research-priorities/rdoc/social-processes-workshop-proceedings.shtml>). One of the areas identified in this

plan is social processes. The findings of the current study add to the existing body of evidence that demonstrates that difficulties in social functioning cut across the common mood and anxiety disorders. Further research in this area focusing on a range of social processes across disorders may have an important role to play in understanding these disorders and interventions that may reduce their impact.

Focused longitudinal studies investigating anxiety and the quality of relationships starting in early childhood and covering the various phases of life would also contribute important information in many areas. Intervention studies focused on helping children and adults to address peer difficulties at earlier stages would show the potential impact of these interventions on the maintenance and development of mental disorders. Providing education to parents of young children concerning the importance of positive relationships may also minimize the onset or severity of problems later in life. However, without research examining and comparing these intervention efforts and their effectiveness, these questions remain unanswered, and potential programs remain unsupported and unimplemented. Development, examination, and comparison of treatments that specifically address relational issues and interaction difficulties is also an important avenue for future research.

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Appendix A1

DSM-IV TR Diagnostic Criteria for Social Anxiety Disorder

Diagnostic criteria for 300.23 Social Phobia

- A. A marked and persistent fear of one or more social or performance situations in which the person is exposed to unfamiliar people or to possible scrutiny by others. The individual fears that he or she will act in a way (or show anxiety symptoms) that will be humiliating or embarrassing. **Note:** In children, there must be evidence of the capacity for age-appropriate social relationships with familiar people and the anxiety must occur in peer settings, not just in interactions with adults.
- B. Exposure to the feared social situation almost invariably provokes anxiety, which may take the form of a situationally bound or situationally predisposed Panic Attack. **Note:** In children, the anxiety may be expressed by crying, tantrums, freezing, or shrinking from social situations with unfamiliar people.
- C. The person recognizes that the fear is excessive or unreasonable. **Note:** In children, this feature may be absent.
- D. The feared social or performance situations are avoided or else are endured with intense anxiety or distress.
- E. The avoidance, anxious anticipation, or distress in the feared social or performance situation(s) interferes significantly with the person's normal routine, occupational (academic) functioning, or social activities or relationships, or there is marked distress about having the phobia.
- F. In individuals under age 18 years, the duration is at least 6 months.
- G. The fear or avoidance is not due to the direct physiological effects of a substance (e.g., a drug of abuse, a medication) or a general medical condition and is not better accounted for by another mental disorder (e.g., Panic Disorder With or Without Agoraphobia, Separation Anxiety Disorder, Body Dysmorphic Disorder, a Pervasive Developmental Disorder, or Schizoid Personality Disorder).
- H. If a general medical condition or another mental disorder is present, the fear in Criterion A is unrelated to it, e.g., the fear is not of Stuttering, trembling in Parkinson's disease, or exhibiting abnormal eating behavior in Anorexia Nervosa or Bulimia Nervosa.

Specify if:

Generalized: if the fears include most social situations (also consider the additional diagnosis of Avoidant Personality Disorder).

Appendix A2

DSM-5 Diagnostic Criteria for Social Anxiety Disorder

Diagnostic Criteria 300.23 (F40.10)

1. Marked fear or anxiety about one or more social situations in which the individual is exposed to possible scrutiny by others. Examples include social interactions (e.g., having a conversation, meeting unfamiliar people), being observed (e.g., eating or drinking), and performing in front of others (e.g., giving a speech).

Note: In children, the anxiety must occur in peer settings and not just during interactions with adults.

2. The individual fears that he or she will act in a way or show anxiety symptoms that will be negatively evaluated (i.e., will be humiliating or embarrassing; will lead to rejection or offend others).
3. The social situations almost always provoke fear or anxiety.
 - **Note:** In children, the fear or anxiety may be expressed by crying, tantrums, freezing, clinging, shrinking, or failing to speak in social situations.
4. The social situations are avoided or endured with intense fear or anxiety.
5. The fear or anxiety is out of proportion to the actual threat posed by the social situation and to the sociocultural context.
6. The fear, anxiety, or avoidance is persistent, typically lasting for 6 months or more.
7. The fear, anxiety, or avoidance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.
8. The fear, anxiety, or avoidance is not attributable to the physiological effects of a substance (e.g., a drug of abuse, a medication) or another medical condition.
9. The fear, anxiety, or avoidance is not better explained by the symptoms of another mental disorder, such as panic disorder, body dysmorphic disorder, or autism spectrum disorder.
10. If another medical condition (e.g., Parkinson's disease, obesity, disfigurement from burns or injury) is present, the fear, anxiety, or avoidance is clearly unrelated or is excessive.

Specify if:

- **Performance only:** If the fear is restricted to speaking or performing in public.

Specifiers

Individuals with the performance only type of social anxiety disorder have performance fears that are typically most impairing in their professional lives (e.g., musicians, dancers, performers, athletes) or in roles that require regular public speaking. Performance fears may also manifest in work, school, or academic settings in which regular public presentations are required. Individuals with performance only social anxiety disorder do not fear or avoid nonperformance social situations.

Appendix B
SOCIAL NETWORK (SN) ITEMS FROM THE NCS-R

***SN1.** The next few questions are about your social life [Not including your (IF ***SC3** EQUALS '1': husband/wife, IF ***SC3a** EQUALS '1': partner)]. How often do you talk on the phone or get together with relatives who do not live with you –most every day, a few times a week, a few times a month, about once a month, or less than once a month?

***SN2.** [Not including your (IF ***SC3** EQUALS '1': husband/wife, IF ***SC3a** EQUALS '1': partner)] how much can you rely on relatives who do not live with you for help if you have a serious problem – a lot, some, a little, or not at all?

***SN3.** Not including your (IF ***SC3** EQUALS '1': husband/wife, IF ***SC3a** EQUALS '1': partner)] how much can you open up to relatives who do not live with you if you need to talk about your worries – (a lot, some, a little, or not at all)?

***SN4.** Not including your (IF ***SC3** EQUALS '1': husband/wife, IF ***SC3a** EQUALS '1': partner)] how often do your relatives make too many demands on you – often, sometimes, rarely, or never?

***SN5.** Not including your (IF ***SC3** EQUALS '1': husband/wife, IF ***SC3a** EQUALS '1': partner)] how often do your relatives argue with you – (often, sometimes, rarely, or never)?

***SN6.** How often do you talk on the phone or get together with friends– most every day, a few times a week, a few times a month, about once a month, or less than once a month?

***SN7.** How much can you rely on your friends for help if you have a serious problem – a lot, some, a little, or not at all?

***SN8.** How much can you open up to your friends if you need to talk about your worries – (a lot, some, a little, or not at all)?

***SN9.** How often do your friends make too many demands on you – often, sometimes, rarely, or never?

***SN10.** How often do your friends argue with you – (often, sometimes, rarely, or never)?

***SN11.** INTERVIEWER CHECKPOINT:

***SN12.** When you have a problem or worry, how often do you let your (husband/wife/partner) know about it – always, most of the time, sometimes, rarely, or never?

***SN13.** When you have a problem or worry, how often do you let someone (else) know about it – always, most of the time, sometimes, rarely, or never?

***SN14.** Next, I will read three statements and ask how much each one sounds like you. First, “I find it relatively easy to get close to other people. I am comfortable depending on others and having them depend on me. I don’t worry about being abandoned or about someone getting too close to me.” How much does this sound like you – a lot, some, a little, or not at all?

***SN15.** Here is the next statement. “I am somewhat uncomfortable being close to others; I find it difficult to trust them completely and difficult to depend on them. I am nervous when anyone get too close to me.” How much does this sound like you – a lot, some, a little, or not at all?

***SN16.** Now the third statement. “I find that others are reluctant to get as close as I would like. I often worry that people who I care about do not love me or won’t want to stay with me. I want to merge completely with another person, and this desire sometimes scares people away.” How much does this sound like you – a lot, some, a little, or not at all?

Appendix C
APPLICABLE MARRIAGE (MR) ITEMS FROM THE NCS-R

- MR40g** How often do you and your partner quarrel? – all, most, some, rarely, never, don't know, refused
- MR41.1a** How much does your (spouse/partner) really care about you? – a lot, some, a little, or not at all
- MR41.1b** How much does your (spouse/partner) understand the way you feel about things? – a lot, some, a little, or not at all
- MR41.1c** How much can you rely on your (spouse/ partner) for help if you have a serious problem? – a lot, some, a little, or not at all
- MR41.1d** How much can you open up to your (spouse/partner) if you need to talk about your worries? – a lot, some, a little, or not at all
- MR41.2a** How often does your (spouse/partner) make too many demands on you – often, sometimes, rarely, or never? – a lot, some, a little, or not at all
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