SOCIAL PHOBIA:

A Descriptive Epidemiologic Study of Socio-Demographic Characteristics, Comorbidity, Age of Onset and Risk Factors

by
Mariette J. Chartier

A Thesis
Submitted to the Faculty of Graduate Studies
in Partial Fulfillment of the Requirements
for the degree of

MASTER OF SCIENCE

Department of Community Health Sciences
Faculty of Medicine
University of Manitoba
Winnipeg, Manitoba

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ABSTRACT

Introduction: Although there has been recent interest in epidemiology of social phobia, many aspects remain to be explored. First, there is a dearth of knowledge of childhood risk factors for the disorder. Second, while it has been suggested that the presence of social phobia may be a risk factor for other serious disorders, such as major depression and alcohol abuse, replication of earlier research on relative age of onset would strengthen this finding. Finally, socio-demographic characteristics and comorbidity of social phobia have been described, but no studies have examined these aspects using the Composite International Diagnostic Interview (CIDI) in a Canadian sample. This proves to be important as the CIDI has a more comprehensive section dealing with social phobia than other interviews previously used in epidemiological surveys. Analysis using the Ontario Health Survey Mental Health Supplement (OHS-MHS) has shown that prevalence rates of mental disorders and other factors vary between Canada and the United States.

Research Questions: Aspects of social phobia considered in this study are socio-demographic characteristics, rates of comorbid disorders, age of onset of social phobia relative to the age of onset of comorbid disorders and childhood adversities.

Methodology: Data from the OHS-MHS was analyzed to answer the research questions. The 8,116 respondents, age 15 - 64, were interviewed using the CIDI. The OHS-MHS is a province-wide, cross-sectional population health survey collected by the Ontario Ministry of Health, and designed to provide information needed for health planning and policy development purposes. The survey has a multi-stage design which used stratification and clustering. Sampling weights were

assigned and the design effect was incorporated into the analysis. The statistical association between the diagnostic groups (social phobia versus without social phobia) and dependent variables was analyzed by logistic regression.

Results: Respondents with social phobia are more likely to be female, younger, single and of lower socio-economic status. This disorder is associated with high rates of comorbidity and its age of onset precedes the age of onset of affective disorders in 71% of the cases and that of substance abuse disorders in 80% of cases. Social phobia is clearly associated with many childhood adversities. These include 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, child welfare involvement, running away from home, physical and sexual abuse, failing a grade and requiring special education before age 9, leaving high school before graduating, participating less in extracurricular school activities and having a negative perception of school environment. Complex (generalized) social phobia is more strongly associated with comorbidity and childhood adversities than more specific speaking-only social phobia.

Conclusion: Results from this study confirm that social phobia, particularly the complex (generalized) type, is as much a public health concern in Canada as it is for other countries. Given that social phobia may be a risk factor for other disorders and that its onset is in adolescence, a developmentally critical period, early detection and treatment is imperative. Naturalistic prospective studies are required to investigate the association between childhood adversities and social phobia.

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CHAPTER 1

BACKGROUND

1.1 Introduction

Social phobia is a highly prevalent anxiety disorder characterized by excessive fear of situations where an individual is subject to the scrutiny of others (American Psychiatric Association, 1994). It can best be conceptualized as extreme shyness. Shyness is a normal experience, endorsed by many people, whereas social phobia is a shyness so pronounced that it is considered pathological (Stein, 1997). Individuals with social phobia may fear and avoid public speaking, eating or drinking in public, entering a room where other people are already seated, talking on the telephone, meeting new people or attending social gatherings. In clinical samples, the disorder has been shown to affect multiple aspects of an individual's life such as education, employment, family relationships, romantic relationships and social networks (Schneier et al., 1994).

Social phobia is considered much more prevalent than previously thought. Recent epidemiological studies estimate 12-month prevalence rates between 6.7 - 7.9 % (Offord et al., 1996, Kessler et al., 1994). Clinical and community studies indicate that the course of the disorder is lengthy. (Reich et al., 1994, Chartier et al., 1998). The mean age of onset reported in most studies is between early and late adolescence with many cases starting in early childhood (Hazen & Stein, 1995, Biedel & Turner, 1988). The last decade has brought many advances in the treatment of social phobia (Heimberg et al., 1995, Sutherland & Davidson, 1995, Schneier, 1995).

Over a decade ago, Liebowitz (1985), having reviewed the scant research on social

phobia, had concluded that it was a distinct disorder in terms of clinical features and a neglected disorder in terms of awareness. Mounting evidence from recent studies suggests that it may be a risk factor for other serious disorders such as depression and alcohol abuse (Schneier et al., 1992, Magee et al.,1996). Most of our understanding of social phobia is based on clinical samples which may not be representative of social phobia in the community. Previous epidemiological studies suggest that most people with this disorder have never sought treatment (Magee et al., 1996). Our knowledge of socio-demographic characteristics, comorbidity and risk factors would be broadened by data obtained from population-based studies. This information is vital in developing intervention and prevention programs and in reducing possible complications. This study considers data on social phobia from a large epidemiologic, cross-sectional study conducted in Ontario.

1.2 Research Objectives

This study examined the following aspects of social phobia:

1. Sociodemographic characteristics of social phobia such as age, gender, marital status, education, personal income, work status, urbanicity, immigrant status and family type (living alone or not).

2. The rates of comorbid disorders in social phobia. Mental health disorders considered were simple phobia, agoraphobia, panic disorder, generalized anxiety disorder, dysthymia, major depression, manic episode, antisocial personality, adult antisocial behaviour, alcohol abuse and dependence, cannabis abuse and dependence, other substance abuse and dependence and bulimia nervosa.

3. The age of onset of social phobia relative to the age of onset of comorbid disorders.

4. The relationship between childhood adversities and social phobia. Risk factors examined were parental history of mental health problems, marital conflict, death of a parent before age 16, nature of relationship with parents or a significant adult, socio-economic status and mobility of family of origin, physical and sexual abuse as a child, juvenile justice or child welfare involvement, running away from home, failure of a grade or requirement of special education, failure to graduate from high school, level of school participation and perception of school environment

5. Comparisons of different subtypes of social phobia with respect to sociodemographic characteristics, comorbidity, age of onset and childhood adversities.

1.3 Diagnostic Criteria of Social Phobia

It is imperative that social phobia be properly identified when attempting to understand the disorder. In psychiatry, a diagnosis is made based on an evaluation of the patient's account and in some cases the family members' accounts of the symptoms experienced. The Diagnostic and Statistical Manual of Mental Disorders (DSM-IV; APA, 1994) and the International Classification of Diseases (ICD-10; World Health Organization, 1992) each list criteria for the diagnosis of social phobia and are displayed in Appendices A and B. In Appendix A, criteria are arranged in 3 groups: definition, level of distress and interference and exclusionary criteria.

Social phobia entered the diagnostic nomenclature of the American Psychiatric Association when it appeared in the publication of DSM-III in 1980 (APA, 1980). This marked an important step, as prior to this, no rules existed which would allow for a systematic diagnosis of social phobia. Though professionals from disciplines such as psychology and psychiatry had been treating people with social anxiety, a common language was lacking by which they could share their experiences and findings. The criteria outlined in the DSM-III made it possible to identify cases in a reliable way. In the DSM-III version, phobias were subdivided into specific categories, namely agoraphobia, social phobia and simple phobia. Social phobia was defined as persistent fear of "a situation in which the individual is exposed to possible scrutiny by others". An individual fearful of a wide range of social situations, might be given the diagnosis of avoidant personality disorder, defined in DSM-III as being hypersensitive to rejection, withdrawing socially despite a desire for acceptance, experiencing low self-esteem and being reluctant to enter relationships unless given strong assurance of acceptance.

In DSM-III-R (APA, 1987), social phobia was more broadly defined as "a persistent fear of one or more situations in which the person is exposed to possible scrutiny by others and fears that he or she may do something or act in a way that will be humiliating or embarrassing". Additionally, more detailed criteria were provided. The new criteria improved reliability and validity of diagnosis thereby permitting clinicians and researchers to differentiate among simple phobias, agoraphobia and social phobia.

In the DSM-IV(APA, 1994), the most recent version of the diagnostic manual of the American Psychiatric Association, the criteria were further refined and clarified.

Criteria differed marginally from those in DSM-III-R (Hazen & Stein, 1995). A broader description of social phobia now included fear of unfamiliar people and showing anxiety symptoms.

While the DSM is widely used in North America, the International Statistical Classification of Diseases and Related Health Problems (ICD) is the diagnostic system most commonly used in Europe. It was developed by the World Health Organization as a result of widespread, international consultation. This system of categories includes all types of health problems. Chapter V addresses mental health problems (Cooper, 1994). For the first time, the current ICD-10 edition has included social phobia as an officially recognized diagnosis. Upon comparing the two sets of criteria for diagnosing social phobia, it was found that DSM-III-R criteria identified more cases than ICD-10 criteria (Wacker et al., 1992).

Although there have been important developments in refining the diagnostic criteria for social phobia, the recent diagnostic systems fail to specify what level of interference and distress is required to make diagnoses of social phobia (Stein et al., 1994). The lack of precision in these criteria may lead clinicians and researchers to differ in their identification of cases. This has important implications for determining prevalence rates of social phobia.

1.4 Instruments Used in Epidemiologic Studies of Mental Disorders

A variety of instruments are used to collect data in epidemiological studies of mental disorders. The most common ones are the Diagnostic Interview Schedule (DIS)and

the Composite International and Diagnostic Interview (CIDI). With the support of the National Institute for Mental Health in the early 1980s, the DIS was the first to be developed to collect data for large epidemiological studies. It incorporates questions and criteria from previous diagnostic instruments and was designed to satisfy DSM-III criteria. The interview schedule is highly structured, specifying all probes and questions to be used, and has a computerized symptom scoring system which minimizes the need to make clinical judgments. The instrument can therefore be used by lay interviewers which enables the collection of large samples. The DIS interview is found to have acceptable levels of interrater reliability (Robins et al., 1981). It assesses social phobia within a section of other simple phobias. Among questions on specific fears such as heights, tunnels, bridges and storms, there were questions about three social situations: eating in front of other people (either people you know or in public); speaking in front of a small group of people you know and speaking to strangers or meeting new people (Walker & Stein, 1995).

The CIDI was subsequently developed and has been used in most of the recent epidemiological studies of mental disorders. As well as assessing mental health symptoms to obtain a psychiatric diagnosis, it gathers information about likely risk factors and about social consequences. This interview was developed by a team of researchers at the request of the World Health Organization and the United States Alcohol, Drug Abuse and Mental Health Administration. Developments in psychiatric nosology, interview design, computer technology and survey methods facilitated the preparation of the CIDI. It grew out of experience with the DIS and was designed to serve cross-cultural epidemiologic and comparative studies of psychopathology. Both major diagnostic systems, the ICD-10 and

the DSM-III-R, may be applied using this interview. The CIDI has a separate and more comprehensive section which inquires about six social situations to assess diagnostic criteria for social phobia.

The prevalence rates for social phobia are dramatically higher in the studies using the CIDI interview than those found in earlier studies which used the DIS interview. The CIDI applies less restrictive criteria in diagnosing social phobia. Evidence of significant or marked distress is adequate to meet the criteria, and interference in daily life and activities is not necessarily required.

1.5 Description of Terms Used in the Study

Socio-demographic: A description of socio-demographic characteristics contributes to our understanding of social phobia. Variables most commonly examined are age, gender, socio-economic status, marital status, employment status, race and whether the respondent is from a rural or urban setting. These data help in predicting which individuals are most likely to develop a condition and allow for the planning of mental health services. Additionally, it is often necessary to take socio-demographic variables into account when studying other aspects of a condition. For example, it is important to take the gender of respondents into account when reporting prevalence rates, since the prevalence rate of social phobia is significantly higher for women (Magee et al., 1996).

Comorbidity: Comorbidity can be broadly defined as the presence of more than one disorder in a person in a defined period of time (Wittchen & Essau, 1993). Lifetime comorbidity is the presence of all the disorders a person has developed at some point in

his/her life span. More precisely and pertinent to this study, epidemiologic comorbidity is said to exist when the prevalence of a certain disorder (major depression) among persons with the disorder in question (social phobia) differs from the prevalence of this disorder (depression) among those without the disorder in question (no social phobia). This is also known as non-independence between or association between the two disorders. The utilisation of odds ratios is an appropriate way of discerning random comorbidity from epidemiologic comorbidity (Kreamer, 1995).

To some extent the term comorbidity has been the subject of controversy as it conflicts with traditional nosological thinking in psychiatry. The question has arisen as to whether separate comorbid disorders exist or whether they are different manifestations of a primary disorder. Wittchen (1996) divides the scientific world in two camps with regard to this matter: the "splitters" and the "lumpers". The splitters consist of those who favor the division of the major classes of mental disorders into smaller units and the lumpers are those who prefer to find commonalities among disorders. Critics of reports on comorbidity claim that it is simply an artefact of splitting DSM diagnoses into separate classes. Diagnoses do in reality have many symptoms in common, for example, anxiety and depression have overlapping symptoms. Both epidemiological and clinical studies provide compelling evidence that comorbidity is not produced by chance or as an artefact. In fact, clinical comorbidity is actually higher than in epidemiologic comorbidity (Wittchen, 1996). This is particularly true if lifetime comorbidity is considered.

Risk Factor: A risk factor is an aspect of personal behavior or lifestyle, an environmental exposure, or an inborn or inherited characteristic, which on the basis of epidemiologic

evidence is known to be associated with health-related conditions considered important to prevent (Last, 1995). Risk factor research refers to the study of these antecedent conditions and subsequent outcomes and how they are related (Kazdin et al., 1997). Identifying risk factors, such as childhood adversities, can often uncover important clues as to the etiology of a disorder as well as enabling health care providers to predict which individuals are most likely to develop the disorder. The childhood adversities examined in this study are described in Appendices C and D.

CHAPTER 2

LITERATURE REVIEW

2.1 Epidemiologic Studies

In the last two decades, a number of epidemiological studies have addressed the subject of mental disorders, including that of social phobia. Whereas most reports focus on prevalence rates, some have a broader scope which encompasses socio-demographic characteristics, comorbidity and risk factors. The main characteristics and prevalence rates of social phobia reported in epidemiologic studies are summarized in Tables 1 and 2. The studies are classified into two main groups: early and recent studies. A quick glance reveals that the prevalence rates for social phobia vary between a lifetime prevalence of 0.5% to 16%. There are many possible explanations for this. Different studies employ different methods of collecting and analyzing information. There are different interviewing instruments with different criteria for defining caseness, different sampling procedures, time frames and age groups. Some studies report lifetime prevalence rates and others, six-month prevalence rates. Generally, studies using similar methods tend to produce similar results. For example, earlier studies, that used the DIS interviewing instrument have comparable results (Bland et al., 1988, Regier et al., 1988, Weissman et al., 1996, Hwu et al., 1989, Steffansson et al., 1989, Wells et al., 1989). The National Comorbidity Survey and the Ontario Health Survey, using the CIDI reported similar results (Kessler et al., 1994, Offord et al., 1996). As mentioned earlier, the CIDI has more items related to social phobia (six versus three) and thus probes in more detail for the disorder.

The age groups considered were different in various studies. Researchers in the NCS only included respondents that were between 15 - 54 years old, while others such as the study conducted in Savigny, France and the ECA studies interviewed respondents 18 years old and older. This disparity is potentially important as there may be a difference in age distribution. It does appear, for example, that prevalence rates for social phobia decrease in older populations.

The reason for the differences among different countries is not entirely clear. The European study, in Italy, which developed the lowest estimate of prevalence, allowed only one diagnosis to be reported. This may explain the lower rate, considering the high level of comorbidity reported in most other studies (Walker & Stein, 1995). In Asia , where there is severe social stigma associated with mental illness and a greater reluctance to disclose personal information, much lower rates of psychiatric symptoms were reported (Compton et al., 1991). Prevalence rates reported in English-speaking countries and those with history of strong European influence were similar.

Some researchers have explored the effect of different diagnostic criteria on determining the diagnosis. Wacker et al. (1992) compared the ICD-10 with the DSM-III-R with regard to their definition of cases in the general population. They found some significant differences in the identification of cases between the two classification systems and concluded that with respect to anxiety disorders the ICD-10 and the DSM-III-R moderately converge. The DSM-III-R identifies more cases of social phobia than the ICD-10.

In a telephone survey of social anxiety, Stein and his colleagues (1994) concluded

that the prevalence rate of social phobia depended heavily on the diagnostic criteria used. The authors analyzed data from 526 randomly selected community respondents in Winnipeg, Canada. When the diagnostic threshold was set to include persons who reported at least moderate interference or distress in social situations, 18.7% of respondents fit this description. Only 7.1% were included when the threshold was raised to include only those who reported marked interference or distress - a definition that is closest to DSM-III-R. And finally, 1.9% were included when the threshold was further raised to include only those who reported marked interference as well as distress - a close approximation of the DSM-III criteria. It is therefore imperative to keep these observations in mind when interpreting the epidemiological data collected on the prevalence rates of social phobia.

A recent study of adolescents by Wittchen and his colleagues (1998) used a modified version of the CIDI. They reported a 12-month prevalence rate for social phobia of 2.6% and a lifetime rate of 3.5%. In their report, they specified the use of more stringent criteria for meeting a social phobia diagnosis. Once these criteria were relaxed, the prevalence rate was increased to a 12 month rate of 5.2% and a lifetime rate of 7.3%. The prevalence rate is still considerably lower than expected in this younger age group. Verhulst et al., 1997 reported a six-month prevalence rate of 9.2% for adolescents and the NCS a 30-day prevalence rate of 7.3% in this age group. It should be noted, as well, that Verhulst's study had interviewed both adolescents and their parents, thus the 9.2% prevalence rate is a combination of two reports.

Also, in the analysis, the method used for dealing with missing data can account

for some of the difference. For example, in the Ontario Health Survey, the investigators did not include data where there were too many missing values. In the National Comorbidity Survey, the analyst would use elaborate calculations to replace missing data. This could partially explain why the prevalence rates from the OHS were more conservative than those from NCS (Wong J: personal communication, November,1998).

When making statements about the prevalence of social phobia, it may be important to qualify the severity. Studies with lower prevalence rates may represent those individuals with social phobia who are more severely impaired and those with higher prevalence rate may include the severely impaired as well as the milder cases. There may also be very real differences in rates of social phobia across countries due to socio-economic, genetic, cultural and unknown reasons, although this remains to be demonstrated.

2.2 Socio-demographic Characteristics

Table 3 displays the socio-demographic characteristics reported in recent epidemiological studies. With the exception of the Edmonton study, most report that the majority of individuals with social phobia are female. This is in contrast to what is observed in some clinical settings where those seeking treatment for social phobia are mostly men (Amies et al., 1983). Most studies, again with the exception of the Edmonton study, found that individuals with social phobia tended to be younger. Other characteristics found in this population are lower income and educational attainment. The marital status of individuals with social phobia presents differently in different studies.

Generally it appears that they are less likely to be in a relationship than the general population. Other characteristics reported in the National Comorbidity Survey are that individuals with social phobia are more likely to be students, living with their parents, working in the home or not working.

2.3 Comorbidity

The data in Tables 4 and 5 summarize some of the findings of comorbidity in social phobia. Odds ratios are reported. The odds ratio is commonly used in epidemiology to quantify differences in the risk of an outcome between two groups. To compute an odds ratio for comorbidity between two disorders, the following formula can be used (Last, 1995).

$$\text{Odds Ratio} = \frac{\text{\# of cases with the disorder}}{\text{\# of cases without the disorder}} \times \frac{\text{\# of controls without the disorder}}{\text{\# of controls with the disorder}}$$

An odds ratio of 2 would indicate that subjects with lifetime social phobia are twice as likely to have the lifetime disorder than subjects without lifetime social phobia. An odds ratio of 1 indicates no or random association and odds ratios higher than 3.0 are considered to be clinically highly relevant. Odds ratios in more recent studies have been calculated using logistic regression. This provides an odds ratio that has been controlled for other factors, most often socio-demographic factors.

Several large epidemiological studies have reported that comorbidity is a common

occurrence among all of the psychiatric disorders (Dick et al.,1994, Schneier et al., 1992, Angst, 1993, Lépine et al.,1995, Magee et al., 1996). In the National Comorbidity Survey, 52% of respondents have never had any lifetime disorder, 21% have had at least one disorder, 13% have had 2 disorders and 14% have had 3 or more disorders. Of those who have had at least one lifetime disorder, 56 % have lifetime comorbid disorders. While a lifetime history of a mental disorder is quite common, the NCS found that the major burden of illness is in the 14% with three or more lifetime disorders.

Although the presence of comorbidity is a consistent finding , there are some differences in the rates of comorbidity across studies. Wittchen et al.(1996) remarked that variation of comorbidity across studies may be due to the way comorbidity was defined, the time window and the type of instrument used. Lépine and Pélissolo (1996) reviewed the epidemiological and clinical studies that examine comorbidity in social phobia. They considered comorbidity with anxiety disorders, affective disorders, substance abuse disorders and eating disorders. They found high rates of comorbidity with anxiety and affective disorders and lower rates with substance abuse disorders.

2.4 Age of Onset

Ost et al.(1987) reviewed studies reporting age of onset of various phobias in clinical samples. For social phobia he described studies reporting a range of ages: 19 years (Marks & Gelder, 1966), 20 years (Shafer, 1976), 19 years (Amies et al, 1983) and 16 years (Thyer et al., 1985). The mean age of onset for social phobia in his clinical samples was 16 years of age. It is important to be aware that these were clinical samples and it is

possible that epidemiological samples might differ. According to most studies, age of onset of social phobia is in early to late adolescence (Hazen & Stein, 1995). Table 6 summarizes mean age of onset of epidemiological studies. The age of onset of the comorbid disorders was usually later than the onset of social phobia leading some researchers to suggest that social phobia may be a risk factor for comorbid disorders (Schneier et al., 1992, Magee et al., 1996, Lépine and Pélissolo, 1996).

2.5 Early Risk Factors: Childhood Adversities

Very few studies have specifically examined childhood adversities in social phobia, though there has been some work done on risk factors for psychiatric disorders in general. Among variables associated with childhood psychopathology have been low socio-economic status, unwed parents, parental sociopathy measured by parental drug, alcohol or police problems, stressful life events (7 or more in the last 2 years), being nonwhite and having repeated a grade in school (Velez et al, 1988). Laraia et al. (1994) found in a case-control retrospective study that panic disorder with agoraphobia in women was associated with some childhood factors such as a conflicted family environment, lack of parental warmth and support and the presence of chronic physical illness and substance abuse in the childhood home. Tweed et al., (1989) examined the relationship between childhood parental death and divorce and anxiety disorders using data from the ECA study. Associations were found between maternal death and agoraphobia with panic attacks and between parental separation and divorce and agoraphobia with panic attacks and panic disorder. They found no other significant associations between these variables and other

anxiety disorders (including social phobia). It should be noted that parental death during childhood is an infrequent phenomenon, while separation is common.

Kessler et al.(1997), using data from the National Comorbidity Survey, examined several childhood adversities and a number of mental disorders. The adversities they considered were loss events such as divorce and parental psychopathologies, interpersonal trauma such as rape and assault and other adversities such as natural disasters. These factors were associated with the onset but not the persistence of anxiety disorders, mood disorders, addictive disorders and acting out disorders. Parental marital break-up, sexual abuse and maternal psychiatric disorders were the strongest predictors. Also the probability of onset of a disorder increases with the number of adversities. However, according to Kessler, the adversities showed little specificity. One adversity could not be connected with one disorder. The authors stressed the importance of examining multiple adversities over a range of disorders and the necessity of controlling for other disorders when examining adversity in a specific disorder.

Bruch in 1989 reviewed the research on possible familial and developmental antecedents of social phobia. Since research on etiological factors of social phobia was virtually non-existent he discussed work conducted on shyness. Some factors associated with shyness included genetic factors, child rearing practices, childhood illness, birth order, peer neglect and acute self-consciousness in early adolescence. Shy children were described as having parents who are overprotective, less supportive and are more direct on teaching their children about social skills. The parents are also described as more socially anxious themselves.

Marital conflict in the family of origin may play a role in the development of social phobia (Cummings, 1994). History of childhood physical and sexual abuse was higher among subjects with social phobia and panic disorder than among unaffected comparison subjects (Stein et al., 1996). Traumatic social conditioning was a factor that was found to be associated with social phobia by Stemberger et al.(1995). Davidson et al.(1993)studied retrospective reports of risk factors using the ECA data and reported increased rates of maternal psychiatric disorder, parental separation/divorce, impaired school performance and behavioral problems during adolescence in individuals with social phobia.

Longitudinal research on temperament by Kagan (1984) sheds light on the role of heritability. Temperament can be defined as a response disposition characterized by early manifested traits enduring over time, having important impact on later personality. It is also considered to have a heritable component. Kagan had noted in his observations of infants that a significant proportion of them manifested behavioral inhibition. Behavioral inhibition was described as an avoidant reaction to unfamiliar stimuli and events. He further observed as he followed the children longitudinally that the behavioral inhibition persisted over time in different forms. Following Kagan's work, Rosenbaum et al. (1994) compared rates of anxiety disorders between parents of inhibited children and uninhibited children. Finding a higher rate of anxiety disorders among parents of inhibited children, they speculated that an inhibited child of a parent with an anxiety disorder may be at risk for developing anxiety disorders later in life.

Two family studies have been conducted to test the hypothesis that social phobia runs in families. Fyer et al (1993) found that relatives of social phobia probands had a

significantly greater risk for social phobia than did relatives of control subjects who had never had a mental disorder (16% versus 5%: $p<0.01$). Stein et al.(1998) studied relatives of subjects with generalized social phobia and control subjects to see if there were differences in the rates of the different types of social phobia. It was found that relatives of social phobic probands showed similar rates of a performance type of social phobia to relatives of normal controls (15.5% versus 13.5%) but a much greater risk for generalized social phobia (24.3% versus 4.1%). The odds ratio was 7.61 (95% CI 2.20 - 25.79).

In an effort to understand the role of genetic factors in mental disorders, Kendler and colleagues (1992) conducted a large female twin study. The concordance rate for social phobia was 44.4% for monozygotic twins and only 15.3 % for dizygotic twins. The authors of this study estimated that 30% of the variance in social phobia may be explained by genetic factors after controlling for environmental influences. Recent studies have been unsuccessful in genetically linking genes to the disorder (Stein et al., 1998).

In a qualitative study, individuals with social phobia were asked about perceived risk factors. Thirty-nine respondents with a lifetime diagnosis of social phobia were interviewed using a semi-structured interview schedule. Factors perceived by respondents to precipitate social phobia, using content analysis, were family and school environment, onset of adolescence, low self-esteem, temperament and poverty (Chartier et al. 1998). Bruch and Heimberg (1994) examined retrospective reports pertaining to families of origin of individuals with social phobia and without social phobia. Individuals with social phobia more frequently perceived their parents as isolating them from others, their family units as being less sociable, that great importance was placed on other's opinion of one's behavior,

that shame was used as a method of control or discipline and finally that their mothers avoided social situations.

2.6 Subtypes of Social Phobia

As reported above, the prevalence rates for social phobia are high, in fact, the highest among all mental disorders. Among individuals with social phobia, the degree of severity is wide-ranging. In DSM-IV (APA, 1994), two types have been defined; generalized social phobia and by exclusion, nongeneralized social phobia. Individuals fearing most social situations are described as generalized and those fearing one or two situations are described as nongeneralized. The issue of classifying subtypes has been a subject of debate. The controversy arises due to the lack of precise criteria for distinguishing between subtypes (Hazen & Stein, 1995). It is likely that as more empirical data is gathered, these subtypes will be redefined.

Kessler et al. (1998) examined the proportion of respondents with social phobia who have broad-based and seriously impairing social fears versus respondents who have less extensive or impairing social fears. The data base that was used was the National Comorbidity Survey. Of the respondents who met criteria for social phobia in the general population (7.9%), a substantial proportion have pure speaking fear (1.8%). The remainder endorsed at least one social fear other than speaking fears (6.1%). Of the respondents who endorsed at least one other social fear, over half also endorsed 3 or more social fears other than speaking fears (3.8%). Thus, it could be estimated that 3.8% of respondents may have a more pervasive type of social phobia.

The respondents meeting criteria for social phobia were divided into two groups for analysis. One group consisted of respondents who only feared public speaking or talking in front of a small group (referred to as speaking only social phobia). The other group was afraid of at least one social situation other than speaking (referred to as complex social phobia). Kessler and his colleagues compared the socio-demographic characteristics, comorbidity and impairment in the two groups. Complex social phobia was associated with higher rates of comorbidity and greater impairment. Respondents with complex social phobia also had lower income and education. Respondents with speaking only social phobia were more likely to report social phobia as the disorder with the earliest onset. No gender differences existed among the groups.

CHAPTER 3

METHODOLOGY

3.1 Overview

In order to address the research questions of the proposed study, permission has been granted allowing access to the data file of the Ontario Health Survey (OHS) and to the Mental Health Supplement (MHS). The OHS is a comprehensive population health survey commissioned by the Ontario Ministry of Health and designed to provide information on general health for health planning and policy development purposes. Since a complete assessment of mental health problems was beyond the scope of the survey, the MHS was subsequently administered. This Supplement to the OHS was conducted to study prevalence, severity and risk factors of disorders and to gather data on mental health services. It was a province-wide, epidemiologic, cross-sectional study of psychiatric disorders among those aged 15 years and over living in households in Ontario. (Boyle et al.,1996).

Potential respondents for the OHS were selected in 2 stages; first in a probability sample of all the Enumeration Areas(EA) of the province and second in a probability sample of households within the EA that had been drawn. Stratification into urban and rural areas was used in the sample of EA to improve statistical reliability of estimates. Cluster sampling was used in sampling the households to reduce data collection costs. The MHS was then administered to a subset of the OHS by lay interviewers by means of personal interviews.

3.2 Target Population

The target population for the Mental Health Supplement consisted of all individuals, aged 15 years or older who lived in dwellings in Ontario between August through November of 1990. For this particular study, the target population was further limited to people aged 15 to 64. Older individuals were not questioned about all mental disorders as the interview was too lengthy. It should be noted a number of Ontarians other than those not interviewed because of age were also excluded: foreign service personnel, homeless people, people living in institutions (for example, hospitals, prisons), First Nations people living on reserves and residents of extremely remote locations.(Boyle et al., 1996).

3.3 Design

As described earlier, this survey was a multi-stage design which used stratification and clustering. The latter techniques are used to ensure representation and feasibility. Boyle and his colleagues (1996) provide a more comprehensive description of the Ontario Health Survey and the Mental Health Supplement. Figure 1 illustrates the various stages of the complex survey design. Ontario is divided into 42 Public Health Units (PHU). Each PHU contains numerous geographical units for which census counts can be returned. These are called enumeration areas (EA). Each urban EA has on average 375 dwellings and each rural EA has on average 125 dwellings.

The survey was conducted in 2 stages:

1) A probability sample of on average 46 enumeration areas (EA) was selected from each Public Health Unit (PHU). The probability of being selected was adjusted for each EA; the

larger the number of households per EA, the larger the probability of being selected.
2) A probability sample of 15 households were selected from the urban enumeration areas and 20 households were selected from the rural enumeration areas.

For each PHU, an equal number of households (760) was selected to ensure that the sample sizes and statistical reliability would be comparable at this level. At the PHU level, stratification was used to increase statistical reliability by ensuring that subgroups were adequately represented. The EAs were sorted into urban and rural strata. Urban EAs consisted of urban core defined as having a population of at least 100,000 and urban fringe with a population of 10,000. The remainder of the EAs were defined as rural. This stratified sample gives estimates that are more precise per unit cost than simple random sampling. Since the groups are homogeneous, the within stratum sample is smaller. Selected EAs were then randomly divided into four parts or quarters and each household was assigned a survey month for the interview to be conducted. The Mental Health Supplement was selected from the 3rd and 4th quarters.

Cluster sampling of the households was used to decrease costs of data collection. This clustering effect was less pronounced in urban areas by the selection of fewer dwellings per EA. There were more urban EAs and they were more compact and less expensive to list. The cluster effect in rural areas was higher because of fewer clusters. To offset this design effect in rural areas, more households were selected per EA. One respondent from each household was interviewed. To increase statistical reliability of the 15 - 24 age group, this group was over sampled. If no one in the household was between 15 - 24, all members in the households had equal chances of being selected. Computer-

generated random numbers were used to select the subjects.

3.4 Sample

The sampling frame for the Mental Health Supplement consisted of all the files of fully or partially completed interview forms from the 3rd and 4th quarters of the Ontario Health Survey. Pilot studies were conducted in the 1st and 2nd quarters. These quarters were designed to be complete replicates of each other to ensure that the representativeness of the Supplement sample would not be affected. Response rates to the Ontario Health Survey and the Supplement are included in Appendix E.

3.5 Nonresponders

Nonresponders were compared to the responders of the MHS-OHS. Nonresponders tended to be male, to live in urban settings, be older, born outside of Canada, to speak a language other than English at home and to have less health problems than the responders. On important measures of health status such as: education, income, marital status, there was very little difference between the nonresponders and the responders. Selection bias is unlikely to be a concern. A weighting procedure was used to compensate for the nonresponse at the Ontario Health Survey and the Mental Health Supplement level.

3.6 Instrumentation

For the most part, the interview schedule used for the Mental Health Supplement

was the Composite International Diagnostic Interview (CIDI). As explained earlier, the CIDI is considered more sensitive in diagnosing social phobia than the DIS. Kappa estimates for social phobia were remarkably high at 0.97. Appendix F shows Kappa estimates prepared by Wittchen et al.(1991). Some changes were made to the structure and flow of the interview before it was used for the Mental Health Supplement. (1)One of these consisted in asking a series of probing questions about a variety of mental disorders at the beginning of the interview and following up positive answers with a series of questions afterwards. Respondents answered these questions before learning that a positive answer would result in a series of burdensome questions. (2)Probe questions were asked only after the respondent had met a minimum requirement. For example, in the mania section, probe questions were asked only if the respondent had 2 or more symptoms occurring together in a manic episode. (3) Changes were made to the antisocial section to help overcome negative stigma in order to improve accuracy of response. (4) The scope of the questions were expanded to include information on mental health utilization (Boyle et al., 1996).

At the time the Mental Health Supplement was conducted, the DSM-IV had not been completed. The criteria in DSM-IV differ marginally from those in DSM-III-R (Hazen & Stein,1995). The essential components, however, do not differ and the information gathered from this version of the CIDI would most likely satisfy the criteria for DSM-IV.

The diagnosis of social phobia was made on the basis of questions C26 to C42 (Listed in Appendix G). In assessing social phobia, respondents were asked:" Some

people have such an unreasonably strong fear of doing things on this list that they avoid them altogether or feel extremely uncomfortable about doing them. Have you ever had such an unreasonably strong fear of...

a) speaking in public?

b) having to use the toilet when away from home?

c) eating or drinking in public?

d) talking to people because you might have nothing to say or might sound foolish?

e) writing while someone watches?

f) talking in front of a small group of people?"

If any of these fears were endorsed, the interviewer would then ask respondents about the persistence of the fear, avoidance of the fear and the degree of distress and interference which the fear caused. He/she would also ask whether or not respondents had sought help by consulting a doctor, a psychologist or other professionals or taken a medication to alleviate the fear. If respondents answered yes to persistence, avoidance, distress or seeking any type of help or if they answered "a lot" to degree of interference or avoidance, further questions were asked.

They were asked about the first time the fear had occurred, how old they were at the time and the last time they had experienced fear. They were then asked more questions about interference, physical symptoms and cognitions as follows; " Did this/these unreasonable fear(s) ever keep you from completing a task at home or work, taking on new responsibilities, or taking on a new job?" "Did it/any of them ever keep you from

going to a party, social event or meeting?" "When you were in this/these situation(s) or were thinking about it/them, did it almost always make you extremely nervous or panicky, make you sweat, your heart pound or make you short of breath?" "When you had to be in this/these situation(s) , did you blush or shake, feel like vomiting, or were you afraid of doing something very embarrassing?"

3.8 Ethics

Data were collected by the Ontario Ministry of Health. Most of the interviewers had prior extensive experience and all received 4 days of training. They were supervised by a senior interviewer responsible for eight to twelve interviewers. A 24-hour hot line was set up that could be used by respondents or interviewers if distress was experienced during or following the interview. This hot line was rarely used.(Boyle et al., 1996)

In compliance with the Freedom of Information and Protection of Privacy Act of the Ontario Ministry of Health, the author applied for and obtained a research agreement to gain access to the data files. The signed agreement stipulates that the researcher will not release any information that identifies an individual, that all persons who have access to the data will be identified to the Ministry and that the data files be kept in a secure location. No personal identifiers such as names, addresses or even postal codes are included in the data files. Since it may be remotely possible with extensive cross tabulation that an individual's identity could be revealed, these safety measures were carefully respected.

3.9 Analysis

Large complex population survey designs such as this one cannot be analyzed in the usual manner. Statistical tests assume simple random sampling where each subject has had an equal chance of being selected. In this survey, since stratified and clustered sampling were utilized, this assumption does not hold. New developments in statistical theory and computer software have made is it possible to take the sampling technique into account in this analysis. Adjustments, using sampling weights and design effects, were made before proceeding.

Sampling weights, also referred to as probability weights or relative weights, were used to represent the probability that a particular individual is sampled (Lee et al., 1989). The characteristics of a region, for example, which has been over-represented due to the sampling technique can then be readjusted proportional to their likelihood of being sampled. Weights can also be used to represent the number of people that each case represents in the population and to account for other factors such as non-response. All these weights can be combined into a single sampling weight for each individual case (Goel, 1993). Sampling weights in this analysis were assigned to each respondent.

Design effect was the other adjustment to be considered. A carefully designed study having incorporated the sampling weights will yield samples that are representative of the whole population. However, the variances of these estimates are not correct. They tend to underestimate the true variance, leading to confidence intervals that are too small. This increases the possibility of a Type I error, finding that a comparison is statistically significant when it is not. Cluster sampling is the main reason that the variance is affected.

Within each cluster, the sample may have been homogeneous on certain characteristics such as socioeconomic level and perhaps in ethic backgrounds. There is therefore less variability in a sample collected by clustered sampling than by simple random sampling. To take clustering into account, the degree of correlation present within the sampling clusters is calculated and summarized as the design effect. A simple approximation for incorporating the design effect into statistical analyses with standard software is to divide each analytic weight by the calculated design effect. The design effect in the Ontario Health Survey as calculated by Statistics Canada was 2.2. Each individual weight in this data set was divided by 2.2.

The statistical association between the diagnostic groups (social phobia vs without social phobia) and dependent variables was analyzed by logistic regression. This method is well suited to describing characteristics of categorical outcome as in this case (social phobia = 1, no social phobia = 0). The procedure does not assume normal distribution of variables, constant variance or the use of continuous variables (Hassard, 1997). As in multiple regression, logistic regression allows for the use of multiple variables in a model. This makes it possible to calculate the unique effect of each variable on the outcome variable while controlling for comorbidity and several socio-demographic characteristics. Adjusted odds ratios were derived from the logistic regression equation.

SPSS was the computer program used in summarizing and analyzing the data. The program SUDAAN was also considered, as it has been recommended for analyzing complex survey designs with greater ease (Bellhouse, 1997). Goel (1993) made some comparisons using various techniques and programs. He found that the standard errors

calculated by SUDAAN and by conventional programs such as SAS and SPSS were so similar that using SUDAAN was not considered to be necessary for OHS users.

The main focus of this study was to compare subjects with social phobia to subjects with no history of social phobia regarding sociodemographic characteristics, rates of comorbidity, age of onset and rates of childhood adversities. This group of subjects with social phobia consists of all subjects who met DSM-III-R criteria for social phobia in the12 months prior to the interview. In considering comorbidity variables, lifetime social phobia was used.

Due to the small number of social situations surveyed, the respondents in this sample could not definitively be classified into generalized and nongeneralized subtypes of social phobia. In an effort to estimate generalized social phobia, those respondents with social phobia reporting 3 or more social fears were identified as the severe social phobia group. The second analysis was conducted using the severe social phobia outcome variable. This analysis compared a subgroup of respondents with current (12-month) severe social phobia to respondents with no history of social phobia.

Previous research has found that individuals with social phobia whose social fears are limited to public speaking situations are less severely affected by social phobia than individuals who have social fears beyond public speaking situations (Stein & Chavira, 1998). Kessler et al.,(1998) through latent class analysis had divided the National Comorbidity Survey sample into two groups: speaking-only social phobia and complex social phobia. Speaking-only social phobia consisted, as its name suggests, of respondents with social phobia who reported being fearful of one or two of the speaking situations;

public speaking and talking in front of a small group of people. The other group, complex social phobia, consisted of respondents who endorsed at least one social fear other than a speaking fear. These two groups were mutually exclusive. This third analysis compared these two types of social phobia with respect to socio-demographic characteristics, rates of comorbidity, age of onset and risk factors.

CHAPTER 4

RESULTS

4.1 Socio-demographic Characteristics

When all cases of social phobia (12-month) were compared to respondents with no history of social phobia, some differences between the groups emerged and are shown in Table 7. Compared to respondents without social phobia, respondents with social phobia were younger, more often female, less educated and of lower personal income. These factors remained significant when the logistic regression procedure controlled for age, gender and socioeconomic status. For example, after controlling for age and education, the likelihood of being female was 1.5 times greater in the social phobia group than the group with no history of social phobia. Significantly higher rates of social phobia were found among those who did not graduate from high school. Respondents not graduating from high school when compared to respondents with at least some post secondary education were 1.65 times more likely to meet criteria for social phobia. There was also strong evidence of a negative association between annual personal income and presence of social phobia. Unlike earlier studies, marital status and work status did not vary between groups when controlled for other socio-demographic variables. It should be noted that more young people met criteria for social phobia and that younger people are less likely to be married or employed. There were no significant differences between the groups for urbanicity, immigrant status or living alone status.

When the 185 respondents with severe social phobia were compared to

respondents with no history of social phobia, differences in socio-demographic characteristics were found. Results of this analysis are shown in Table 8. Contrary to the previous analysis, the logistic regression model giving the best fit for this relationship was not straightforward. A curvilinear relationship and interactions were found among the variables.

The relationship between personal income and severe social phobia ,when controlled for marital status and age, is curvilinear and illustrated in Figure 2. The likelihood of having severe social phobia increases very slightly and then mostly decreases as annual personal income increases. As the relationship between severe social phobia and personal income is curvilinear, the odds ratio is not constant and can only be calculated between 2 points. For example, a 20 year old single individual earning $4,500 a year, is twice as likely to have severe social phobia than an individual of the same marital status and age but earning $25,000.

A significant interaction was found between age and marital status when controlled for personal annual income. The relationship between age and likelihood of having severe social phobia varied with marital status as shown in figure 3 and figure 4. The likelihood of severe social phobia decreases with age for married or previously married respondents (shown in Figure 3). For example, a 20 year old married individual earning a moderate income is 1.35 more likely to have severe social phobia than a 40 year old married individual earning the same income. Conversely for single respondents (Figure 4) the likelihood of having social phobia increases with age. A 40 year old single individual earning a moderate income is twice as likely to have severe social phobia than a 20 year

old single individual earning a similar income. Another way of describing the relationship between marital status, age and severe social phobia is shown in Figure 5. Most people do not marry before 25, so very little difference in marital status between severe social phobia and no social phobia would be expected in this age category. The difference in marital status becomes evident after 25. Since individuals with severe social phobia are less likely to marry, the proportion of individuals with this problem increases relative to proportion of individuals without the problem as age increases.

Gender failed to reach significance, though the unadjusted percentages remained roughly the same (59% female for 12 month social phobia and 58% for severe social phobia). The sample size for this analysis is smaller, so the statistical comparisons were less powerful. In this analysis, marital status was significantly different between the two groups. Those with severe social phobia are twice as likely to be single than those without social phobia.

The third analysis is to contrast two groups of respondents with social phobia: speaking-only social phobia versus complex social phobia. The differences between the groups with regard to the socio-demographic variables (shown in Table 9) were few and not dramatic. There was a curvilinear relationship between the types of social phobia and personal income. Speaking-only social phobia is much more common in highest economic groups (over $60,000) than complex social phobia. When the two groups were compared in regards to education, the only significant difference was that respondents in the speaking-only social phobia group were 2.62 times more likely to complete their post-secondary education. The last differences to note are that respondents with complex

social phobia were less likely to have immigrated to Canada.

4.2 Comorbidity

Previous studies have found high comorbidity rates among respondents with social phobia. Comorbidity, in this sample, was defined as having a lifetime diagnosis of a mental disorder other than social phobia. Fifty-two percent of respondents with social phobia reported at least one other lifetime disorder and 27% reported three or more lifetime disorders. Similar to the approach with the socio-demographic variables, three separate analyses with three different but overlapping groupings of respondents were conducted. The first analysis compared the rate of lifetime comorbidity between those with a lifetime diagnosis of social phobia and those with no history of social phobia controlling for age, gender and education. The results are summarized in Table 10.

The second and third columns of the table show the weighted (but not controlled) percentages for each of the disorders among those with lifetime diagnosis of social phobia and those with no history of social phobia respectively. The fourth and fifth columns show the odds ratios and their confidence intervals. A lifetime diagnosis of simple phobia, after the data has been weighted, is found among 25.4% of those with a lifetime diagnosis of social phobia. This is much higher than the rate of 6.1% found among those never having been diagnosed with social phobia. When controlled for age, sex and education, the odds ratio was calculated to be 4.86, meaning that individuals with a lifetime diagnosis of social phobia were 4.86 times more likely to have a lifetime diagnosis of simple phobia than those with no history of social phobia. The highest odds ratios of comorbidity found

in lifetime social phobia are manic disorder, dysthymia and agoraphobia. Those with a lifetime diagnosis of social phobia are nine times more likely to have a lifetime diagnosis of manic disorder than those with no diagnosis of social phobia. An interesting finding is the significantly higher rate of comorbid antisocial personality disorder and adult antisocial behaviour found in respondents with social phobia.

The logistic regression model was tested for interactions. An interaction was found between gender and alcohol abuse as illustrated in Figure 6. In general, among respondents with and without social phobia, males have much higher rates of alcohol abuse than females. The gap between the genders is narrowed among respondents with lifetime social phobia.

In order to examine the group having a more severe form of social phobia, a second analysis was conducted comparing those who had social phobia and 3 or more fears of social situations to those with no history of social phobia. As shown in Table 11, there are very high degrees of comorbidity among respondents with severe social phobia. The likelihood of having another lifetime disorder is dramatically increased among this more severe subgroup of respondents with social phobia compared to the main group of respondents with social phobia in the first analysis. Agoraphobia and manic disorder show especially high odds ratios.

The logistic regression model was tested for significant interactions. There is an interaction between gender, social phobia and agoraphobia as illustrated in figure 7. The rate of agoraphobia in the general female population is approximately four times higher than for males. The difference is much less between males and females with severe social

phobia.

The last analysis of comorbidity compared comorbidity rates of another lifetime diagnosis between two groups of social phobia. As was previously defined, speaking-only social phobia are respondents reporting speaking fears only. Complex social phobia consists of respondents with at least one fear other than speaking. These results are summarized in Table 12. There are higher comorbidity rates among individuals with complex social phobia. The only disorder that did not differ at a statistically significant level between the two groups was Adult Antisocial Behaviour. There were no interactions present between gender or age, the two types of social phobia and the other disorders.

4.3 Age of Onset

The age of onset of social phobia reported by individuals meeting lifetime diagnosis of social phobia in this sample is graphed in the Figure 8. The mean age of onset is 13 years old. Some respondents reported age of onset were as young as one year old while others reported as old as 53 years old. In almost all cases, social phobia had developed by 26 years of age. Means for ages of onset were also calculated for subsets of respondents with social phobia and summarised in the Table 13. The means are very similar across groups.

The age of onset of social phobia was compared relative to the age of onset of comorbid disorders. This analysis was conducted by using 4 different groups of social phobia; all lifetime cases of social phobia , severe lifetime cases endorsing three or more social fears (severe social phobia), lifetime cases reporting speaking fears only (speaking

social phobia) and lifetime cases reporting at least one fear that is *not* a speaking fear (complex social phobia). Table 14 summarizes these results. There are two columns for each analysis. The first column indicates the percentage of cases where age of onset of social phobia precedes the disorder followed by the confidence level based on the varying sample sizes. The second column shows the percentage of cases where the age of onset of social phobia follows the age of onset of the comorbid disorder. The two columns do not add up to 100% because a number of individuals reported the onset of both disorders in the same year. Age of onset of social phobia precedes the age of onset of affective disorders and substance abuse disorders in the majority of cases. This remains true for the subgroups of social phobia. The group with speaking fears only has especially high proportions of cases where age of onset of social phobia appears earlier. Since there was much less comorbidity among the group reporting speaking fears only and consequently smaller numbers of individual cases, caution should be used when interpreting these results. A small number of cases with both lifetime diagnosis of social phobia and bulimia nervosa were reported of which 59% were preceded by social phobia. With regards to anxiety disorders, relative age of onset varies among the disorders. Simple phobia most often precedes social phobia. The age of onset for agoraphobia and panic disorder is approximately the same relative to the age of onset of social phobia. Generalized anxiety disorder usually appears later relative to that of social phobia.

The data for age of onset was subsequently analysed by grouping the comorbid disorders into anxiety disorders, affective disorders and substance abuse disorders. Ages of onset of social phobia precedes ages of onset in 32% of the other anxiety disorders,

71% of the affective disorders and 80% of the substance dependence/abuse disorders.

4.4 Childhood Adversities

The following section will present data on the association between retrospectively reported childhood adversities and current (12-month) diagnosis of social phobia. Twenty variables were examined and are listed in the tables below. Appendices C and D gives a detailed description of each variable. In an effort to better understand the relationship between childhood adversity variables and different types of social phobia, multiple models were examined.

The main analysis compared rates of childhood adversities between all cases diagnosed with social phobia within the last 12 months and those with no history of social phobia. Gender differences were also examined. Age, gender and education were used as covariates in order to gain an understanding of the unique influence of the childhood adversity variables on social phobia. Information regarding experiences during high school was also collected from respondents aged 15 to 19. Comparisons on these variables were carried out contrasting a subgroup of more severely affected individuals with social phobia and those with no history of social phobia. The final analysis contrasted the reports of childhood adversities between two subgroups of social phobia, those with speaking fears only and those with at least one fear that was not a speaking fear.

The group with all cases of current social phobia differed significantly from the group without social phobia on a number of childhood adversity variables. The presence of these variables was reported more frequently in individuals with social phobia. Table 15 summarizes the differences. The second and third columns shows the weighted but not

controlled percentages of those reporting the adversity. Columns four, five and six show the odds ratios and confidence intervals for both genders, females only and males only. The only variables that did not vary significantly between the groups were parental death, parental social class, living in a rural area, and failing a grade after third grade. The variables describing parental social class are limited since only 2 categories, blue and white collar, were used.

These data were controlled for age, gender, and education. The variable, "leaving high school" which represents individuals that have left high school before graduating, was controlled for personal income instead. Controlling for these factors, appreciably affected the odds ratio in some instances. In the case of "leaving high school", the weighted but not controlled percentages between respondents with social phobia and no social phobia are relatively close (37% and 30%, respectively). The odds ratio could be expected at about 1.30, however because of the socio-demographic covariates, the odds ratio is 2.08.

These data (shown in Table16) suggest that some childhood adversities and gender may interact in their influence on the development of social phobia. The association between the disorder and some childhood adversities appear to be stronger in one gender than in the other. Not being first born is associated with males with social phobia, though birth order appears to be unrelated for females. Having a history of child welfare involvement or childhood sexual abuse among females is associated with higher rates of social phobia, but not among males. Juvenile justice involvement and requiring special education as a child are positively associated with the disorder for males only. There are some instances, for example, lack of close relationship with an adult, where a variable is

more strongly associated with one gender than for another.

As discussed earlier, social phobia and education level are related. Higher rates of social phobia are found among individuals with lower educational levels. In an attempt to understand how educational status may be affecting the relationship between childhood adversities and social phobia, a separate analysis was conducted without using education as a covariate. The odds ratios did not change appreciably.

It has been suggested that little attempt has been made to determine whether different adversities predispose to different disorders and that studies should adjust for comorbid disorders (Kessler et al., 1997). The implementation and interpretation of such an analysis is beyond the scope of this paper. In an effort to see if these variables remain important when controlled for depression, the childhood adversities variables were analysed by including current (12-month) depression as a covariate. There were 287 respondents out of 6710 with no social phobia and 82 out of 566 with current social phobia who met criteria for current depression. Most of the odds ratios quantifying the relationship between the childhood adversity variables and social phobia in this analysis were considerably attenuated but remained important. As Table 17 shows, some variables were no longer statistically significant such as moving more than three times as a child, juvenile justice involvement and childhood sexual abuse.

A subset of respondents aged 15 to 19 and currently attending high school were asked a variety of questions concerning their perception of school, level of satisfaction, their impairment and participation in extra-curricular school activities. Too few students responded negatively to the school satisfaction and impairment questions to conduct a

meaningful analysis. However, three of the variables contained enough information to compare the group of students with current social phobia to those without social phobia. The results are summarized in the Table 18. The school perception score was derived from the questions listed below the table.

Students with social phobia were twice as likely to report a lack of participation in extracurricular activities. They were also less likely to report a positive perception of their school and consequently more likely to report a negative perception of their school. Thirty-five percent of students without social phobia versus only 15% of students with social phobia gave positive answers such as "I strongly agree or I agree" to all of the questions on positive perception of their school.

The childhood adversities were compared between individuals with no history of social phobia and to a more severe subgroup of individuals meeting criteria for social phobia and having at least three social fears. These results are summarized in Table 19. The childhood adversities meeting statistical significance were the same as those in the previous analysis, however the odds ratios are higher. The subgroup of severe social phobia is more strongly associated with childhood adversities than the group with social phobia. For example, individuals with severe social phobia were 4.69 more likely to have reported running away from home in their childhood than those with no history of social phobia. The group which included all cases of social phobia was 3.4 more likely to report this problem than the group with no history of social phobia.

The last analysis compared two groups of individuals with social phobia, those with speaking-only social phobia and those with complex social phobia. As previously defined,

individuals with speaking-only social phobia are those who report speaking fears only. Complex social phobia consists of those with at least one fear other than speaking. Ten of the twenty childhood adversity variables differed significantly between the groups as presented Table 20.

CHAPTER 5

DISCUSSION AND CONCLUSIONS

5.1 Socio-demographic Characteristics

The sociodemographic characteristics of respondents with social phobia identified in this study are similar to those found in earlier studies. Individuals with social phobia are more likely to be female, younger and of lower socioeconomic and educational status. However this sample did not show significant differences in marital status or in work status between individuals with social phobia and those without history of social phobia previously found in some of the other samples (Schneier et al., 1992, Magee et al., 1996). As a group these individuals may have had less generalized social fears than those in the National Comorbidity Survey(NCS). In the NCS, 77% of the sample with social phobia (shown in Table 21) consisted of respondents with complex social phobia and 48% with severe social phobia (Kessler et al., 1998). In this sample, only 56% made up the complex social phobia group and 34% the severe social phobia group. This may in part explain why no differences were found in marital status in the overall sample with social phobia. To strengthen this explanation, respondents with severe social phobia were less likely to be married than those without social phobia.

5.2 Comorbidity and Age of Onset

Lifetime comorbidity found in social phobia was clearly not random. When controlled for sociodemographic variables, the odds ratio were as high as 2.15 for

substance abuse, 7.2 for anxiety disorders and 8.95 for affective disorders. These results confirm the findings from other epidemiological and clinical studies of the existence of high levels of comorbidity in social phobia (Dick et al., 1994, Schneier et al., 1992, Angst, 1993, Lepine & Pelissolo, 1996, Magee et al., 1996, Van Amerigen et al., 1991). The patterns among the odds ratios are generally similar to those observed in previous studies. Merikangas et al (1996) reported in their review of epidemiological data that more often than not a lifetime diagnosis of another disorder is present among individuals with social phobia.

The data in this sample confirm that the age of onset of social phobia precedes the age of onset for affective disorder and substance abuse in the majority of comorbid cases. In general, the age of onset of social phobia is similar to the age of onset of other anxiety disorders. In light of this observation, it has been suggested that social phobia and other anxiety disorders may be a risk factor for other comorbid disorders (Regier et al., 1998, Schatzberg et al., 1998, Schneier et al, 1992). Lack of social support, high levels of anxiety and interference with life goals among those with social phobia may have demoralising effects.

Even higher rates of lifetime comorbidity were found with severe social phobia. This group may more closely resemble the generalized social phobia that is described in clinical settings and considered to be more impairing. This demonstrates how odds ratios describing comorbidity may vary depending on the delineation of the diagnostic criteria of social phobia.

To the best of my knowledge, this is one of the first studies examining

epidemiological comorbidity of antisocial disorders in social phobia. Davidson et al., (1993) had reported an association between social phobia and antisocial behavior. The relationship of adult antisocial behaviour (odds ratio: 2.15) and of antisocial personality disorder with social phobia (odds ratio: 4.68) is a perplexing finding. As was the case for other disorders, these rates were even higher among those with severe social phobia. Individuals with social phobia are generally thought to be timid and non-aggressive. This result may alert us to the possibility that a significant subgroup of individuals with social phobia also have antisocial characteristics which may complicate treatment. On the other hand, some individuals with antisocial disorders may benefit from treatment of social anxiety. Replication of these results would be helpful to increase our confidence in these findings.

No studies have examined comorbidity of bulimia and social phobia in an epidemiological setting. This sample clearly shows that respondents with lifetime diagnosis of social phobia are more than three times more likely to report a lifetime diagnosis of bulimia nervosa than respondents free of the diagnosis. This rate is even higher among those with severe social phobia (odds ratio: 6.95). These findings are consistent with what has been found in clinical samples (Bulik et al., 1997, Brewerton et al., 1995). Brewton et al. (1995) suggest that some patients may stop or decrease their binging if the anxiety disorders are treated.

There are higher than expected rates of alcohol and drug abuse among individuals with social phobia (OR-alcohol: 2.19, cannabis: 2.19, other: 2.32). Additionally, the age of onset of social phobia precedes the age of onset of substance abuse and dependence in

80% of the cases. The rates in this sample are comparable with other epidemiological studies but lower than rates in clinical samples (Page & Andrews, 1996, Merikangas et al., 1998). The comorbidity rates of alcohol and drug abuse among the group with severe social phobia were more elevated and may reflect more accurately what is found in clinical settings (OR-alcohol: 3.55, cannabis:.4.11, other: 3.98). Further analysis of this sample found particularly high rates of alcohol abuse among women with social phobia relative to alcohol abuse among women with no history of the phobia. Page and Andrews (1996) reported similar results regarding gender differences in a clinical sample. It has been observed in clinical settings that individuals with social phobia use alcohol as a social lubricant (Merikangas et al., 1998). Myrick and Brady (1996), in a study of cocaine-dependent individuals, discussed the importance of taking a diagnosis of social phobia into consideration. They pointed out that group therapies are often used in the treatment of addictions. Yet group situations are often dreaded by those with social phobia. This may lead to non-compliance or decreased effectiveness of the treatment. Myrick and Brady (1996) emphasized the importance of developing strategies to help individuals with social phobia adapt to group situations.

There has been ample discussion in literature concerning comorbidity of anxiety disorders and affective disorders.(Paul, 1988, Hudson & Harrison, 1990, Gorman, 1997, Merikangas et al., 1996). In this sample, rates of comorbidity between affective disorders and social phobia, especially dysthymia and bipolar disorder were similar to those reported in previous epidemiological studies. Many theories have been suggested to explain this. (Merikangas et al.,1996). It may be that both affective disorders and social phobia share

risk factors such as prenatal environment factors or childhood adversities. On the other hand, anxiety could cause hyper-responsivity of receptors, which alters neurotransmission leading to depression. Depression and social phobia both respond to similar types of pharmacological agents (Stein et al., 1998, Paul, 1988).

Given that in this sample, as well as in previous samples, age of onset of social phobia precedes the age of onset of comorbid affective disorders in 71% of the cases, social phobia could well be a risk factor for depression (Schneier et al. 1992, Wittchen et al., 1992, Magee et al., 1996, Weissman et al., 1996). It may be that depression is a response to the impairment induced by chronic anxiety. Parker et al. (1997) recently completed a 15 year longitudinal study of university graduates. They assessed this group at 5 year intervals and found that early onset depression was strongly predicted by a lifetime episode of a major anxiety disorder. Generalized anxiety disorder was a stronger predictor than social phobia and other disorders. The strength of this study was its longitudinal design.

Whatever the reason for comorbidity, individuals with comorbid depression and anxiety have more severe symptoms, poorer prognosis and a lower response to treatment. They are more likely to seek treatment for a mental health problem and more likely to attempt suicide (Emmanuel et al., 1998, Gorman, 1997, Lépine & Pélissolo, 1996). It is therefore important clinically to take comorbidity into account when treating social phobia. The presence of comorbid disorders may to some extent explain the impairment in social phobia. However recent results of an unpublished analysis found that even after adjusting for lifetime major depression individuals with social phobia continued to show

high levels of disability (Stein et al., 1999). Physicians tend to see patients for comorbid disorders and the social phobia goes unnoticed (Weiller et al.,1996), an important opportunity for treatment thus is missed.

5.3 Childhood Adversities

This analysis has show that a positive relationship exists between social phobia and retrospectively reported childhood adversity. Adversities showing a statistically significant relationship with social phobia were lack of close relationship with an adult, not being first born (in males only), marital conflict in the family of origin, parental history of mental disorder, child welfare involvement, running away from home, physical abuse, failing a grade, requirement of special education before age 9, leaving high school before graduation, participating to a lesser extent in extracurricular school activities and having a negative perception of the school environment. The results presented are consistent with previous findings (Kessler et al., 1997, Stein et al., 1996, Davidson et al., 1993, Cummings et al., 1994). These associations were even stronger when the more severe subgroup of respondents with social phobia was analysed.

This study has done little to address the question of whether different adversities are associated to social phobia specifically. Kessler et al., (1997) using data from the National Comorbidity Survey, had concluded that the relative effects of different adversities across the different classes of disorders were more similar than different after controlling for comorbidity. Rutter (1989) stressed the importance of taking comorbidity into account to determine the unique effect of an adversity on the disorders in question.

In this analysis, when social phobia were controlled for depression, the odds ratios for most of the childhood adversity variables were attenuated. Moving more than 3 times as a child, juvenile justice involvement and childhood sexual abuse were factors which no longer reached statistical significance. However the factors which remained significant were child welfare involvement, running away from home, physical abuse, lack of a close relationship with an adult and the variables regarding school performance. These findings are not easily interpreted since, as the Table 22 shows, the most severe cases of social phobia are highly correlated with depression. Those with pervasive social fears are conceivably at greater risk for depression. By controlling the influence of depression, we may also be effectively removing the influence of the most severe cases of social phobia, which leads to a different type of bias. This analysis does indicate that social phobia is associated with many childhood adversities even after being controlled for depression. It does not elucidate the relationship between social phobia and childhood adversities such as mobility, juvenile justice involvement and childhood sexual abuse, as the relationship among social phobia, depression and these adversities are intertwined. Earlier studies have suggested that traumatic events such as physical abuse are associated with the development of anxiety disorder whereas loss events are associated with affective disorders (Brown et al., 1993, Kessler et al., 1997).

These results clearly show that it is essential to consider gender when assessing childhood adversities. Though lack of a close relationship with an adult as a child is associated with social phobia in both genders, males are much more likely to report this situation than women. Work on parenting suggests that a supportive but not

overprotective parenting style is associated with less frequent development of anxiety (Masia & Morris, 1998). Being first born and male is negatively associated with social phobia suggestive that the combination of these characteristics may be protective against the development of social phobia. First born boys may be expected to have greater social roles and therefore may be exposed to a greater degree to social situations. Bruch (1989) had found that shyness was associated with being a first born or a single child. Since social phobia may be an extreme expression of shyness, it can be anticipated that earlier work on shyness may not be entirely consistent with these findings. Other interactive relationships are easier to explain. Childhood sexual abuse is much more common among females in the general population and would therefore more likely be positively associated with social phobia in females. In general, males with social phobia are more likely to report having been involved in the juvenile justice system which is consistent with higher than normal rates of antisocial behaviour found among individuals with social phobia.

Very little is known about the school functioning of students with social phobia. Davidson et al., (1993) reported more school impairment and behavioural problems among this group. These data suggest that in many ways students with social phobia do not fare as well in school as those without social phobia. The cross-sectional data of the 15 to 19 year olds indicate that students with social phobia describe themselves as participating less in extracurricular activities and generally tend to have a more negative perception of their school relative to those without social phobia. Adults with social phobia report more failures in the early grades and a requirement for special education especially for boys. These findings confirm the notion that increasing the awareness of

social phobia among teachers and school counsellors, may be an important step in early intervention. Child and adolescent intervention programs which may be implemented in schools have been developed (Dadds et al., 1997, Kazdin & Weisz, 1998). The success of these programs make the goal of prevention a realistic one.

It must be noted that this study is only the first step in identifying risk factors and establishing a causal relationship. It indicates that there is a correlation between social phobia and many childhood adversities. The relationships between social phobia and childhood adversities were considered to be in the moderately strong range (Odds ratio - between 2 and 3). Odds ratios for severe social phobia and child welfare involvement, running away from home, physical abuse and school difficulties were over 4, which is considered to be highly relevant clinically.

This study does not indicate the direction of possible causality. For example, it is as likely that social phobia discouraged a close relationship with a parent as the lack of a close relationship predisposed the individual to social phobia. It is quite possible that the childhood adversity and the disorder relate to similar underlying causes, for example, genetic components. Determining a temporal relationship would provide essential clues in identifying risk factors. Since age of onset of social phobia is most often in childhood and adolescence, the information in this cross-sectional study is not sufficient. The results of this study have served in narrowing the issues to be examined in later studies. Replication of these results and ultimately naturalistic prospective studies will shed more light on the risk factors associated with social phobia.

5.4 Subtypes of Social Phobia

As Stein & Chavira (1998) pointed out, it remains to be determined how closely the epidemiologic subtypes of speaking only social phobia and complex social phobia resemble the subtypes of non-generalized and generalized social phobia described in the DSM. Many differences between the epidemiologic subtypes were observed in this sample. Respondents with speaking only social phobia were of higher economic status and were more likely to complete post-secondary education than those with complex social phobia. Speaking fears are less pervasive and are conceivably less likely to cause as much impairment thereby permitting individuals to be more successful in their endeavours. The finding that those with complex social phobia are more likely to be non-immigrants is difficult to explain, especially since no difference was found between the larger group with any form of social phobia and those without social phobia. It may simply be that those with complex social phobia choose not to immigrate to a new country or are of lower economic status and do not have the financial means to immigrate. Another hypothesis may be a cultural one. There may be lower prevalence rates in other countries.

The speaking-only group when compared to the complex group was less likely to have a diagnosis of another lifetime disorder. However, the age of onset of the two types of social phobia appeared to be similar. Respondents in the complex social phobia group were twice as likely relative to the speaking only social phobia group to report childhood adversities such as marital conflict, parental history of mental disorders, child welfare involvement, physical and sexual abuse and school difficulties.

These results are very comparable to what was found in a similar analysis conducted

with data from the National Comorbidity Study (Kesseler et al., 1998, Stein & Chavira, 1998). Table 21 compares the prevalence rates of the different types of social phobia. However, there appears to be a higher proportion of individuals with complex social phobia in the NCS than in the MHS-OHS. Current complex social phobia made up three quarters of the sample of respondents with social phobia in the NCS compared to a little over half in the MHS-OHS. As the two samples were collected using a similar instrument, these results suggest that the prevalence rate of generalized social phobia may be lower in the Canadian sample. All of these findings add to the growing body of knowledge that distinguishes the generalized types of social phobia from the more specific public speaking types. This study suggests that the risk factors and possibly the etiology may vary between the two types.

5.5 Strengths and Limitations

The main strength of this study is the data on which it is based. To the best of my knowledge the MHS-OHS is the second study using the CIDI in a large representative sample. The NCS with a sample size of over 8,000 was the first (Kessler et al., 1994). Wacker and colleagues (1992) in Basle, Switzerland used the diagnostic interview but only with a sample size of 470 respondents. This study has served as a replication to Magee and colleagues study with the NCS database (1996). The CIDI has many advantages. It has been tested cross-culturally and is highly structured, thus decreasing chances of observer, information and criterion variation. Additionally, the interview's section pertaining to social phobia is more comprehensive than earlier diagnostic

interviews.

Another strong point of the MHS-OHS is the array of variables explored. Data were collected on mental disorders, such as bulimia nervosa and antisocial disorders, which had not been explored previously in an epidemiological sample. The variables on childhood adversities were relevant to our understanding of potential risk factors. Finally, the data are from Ontario, a population being more representative of Canadians than that of the NCS, thus enabling us to generalize with more confidence the findings of this study.

A few limitations should be noted. Although an improvement over earlier diagnostic instruments, the CIDI's section assessing social phobia asks only about six situations and only one involves a social interaction. All others focus on performance type situations making it difficult to relate the CIDI findings to the DSM-IV diagnosis for the generalized subtype of social phobia in which the individual is afraid of most social situations (Kessler et al. 1998).

Another limitation, especially in childhood adversities and age of onset data is the retrospective nature of the responses. This introduces the possibility of recall bias. For example, it is possible that depressed respondents place more emphasis on previous childhood problems or other problems or that responses from a 60 year old trying to recall an age of onset in his/her teens, may not be accurate.

It is also important to keep in mind that some groups were excluded from the study. Individuals over 65, foreign service personnel, homeless people, people living in institutions, First Nations people living on reserves and residents of extremely remote

locations. Since many not included in the sampling frame were of lower socioeconomic status, the findings could be affected.

5.6 Conclusions

Results from this study confirm that social phobia is as much a public health concern in Canada as it is for countries around the world. As reported in previous studies, this highly prevalent disorder tends to affect individuals who are younger, female, single and of lower socio-economic status. Over half of respondents with a lifetime diagnosis of social phobia in this study reported at least one other lifetime mental disorder. Furthermore, the age of onset of social phobia usually preceded the age of onset of comorbid disorders.

There is clearly an association between childhood adversities and social phobia, even when current depression was controlled in this study. This finding is the first step in identifying certain childhood adversities as potential risk factors. Longitudinal studies are required to determine which are, in fact, risk factors. Awareness of these risk factors will allow clinicians to identify individuals at risk for developing social phobia, provide information for health planning and policy development and provide clues for researchers attempting to understand the etiology and treatment of the disorder.

Although all types and degrees of social phobia are distressing, results from this study indicate that there are differences between those reporting speaking-only social phobia and those with complex (generalized) social phobia. The latter is associated with more comorbidity and is more strongly associated with childhood adversities. Since previous studies had found that this more pervasive type of social phobia is also associated

with greater impairment, it should be recognized and treated as early as possible.

There is a growing realization in Canada, that an essential component to public health is investing resources in various forms of prevention. Social phobia may be a risk factor for other mental disorders. Additionally, it often develops in adolescence, where young people are forming important relationships and making career choices. Given this developmentally important time and risk of further complications, early detection and treatment is critical. It is hoped that these preventative interventions will eventually reduce the prevalence of social phobia and ensuing emergence of comorbid disorders.

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Appendix A: DSM Diagnostic Criteria for Social Phobia

DSM- III Criteria	DSM-III-R Criteria	DSM-IV Criteria
A. A persistent, irrational fear of, and compelling desire to avoid , a situation in which the individual is exposed to possible scrutiny by others and fears that he or she may act in a way that will be humiliating or embarrassing	A. A persistent fear of one or more situations (the social phobic situations) in which the person is exposed to possible scrutiny by others and fears that he or she may do something or act in way that will be humiliating or embarrassing.	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 of others. The individual fears that he or she will act in a way (or show anxiety symptoms) that will be humiliating and embarrassing. Note: In children, there must be evidence of capacity for social relationships with familiar people and the anxiety must occur in peer settings, not just in interactions with adults
B. Significant distress because of the disturbance and recognition by the individual that his or her fear is excessive or unreasonable.	C. During some phase of the disturbance, exposure to the specific phobic stimulus (or stimuli) almost invariably provokes an immediate anxiety response. D. The phobic situation(s) is avoided or is endured with intense anxiety. E. The avoidant behaviour interferes with occupational functioning or with usual social activities or relationships with others, or there is marked distress about having the fear. F. The person recognizes that his or her fear is excessive or unreasonable.	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 withdrawal from the social situation. 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 situation are avoided, or else endured with intense anxiety or distress. E. The avoidance, anxious anticipation or distress in feared social or performance situation(s) interferes significantly with the person's normal routine, occupational (academic) functioning, or with social activities or relationships with others, or there is marked distress about having the phobia.

C. Not due to another mental disorder, such as Major Depression or Avoidant Personality Disorder.	B. If an Axis III or another Axis I disorder is present, the fear in A is unrelated to it, e.g., the fear is not of having a panic attack (Panic Disorder), stuttering (Stuttering), trembling (Parkinson's disease), or exhibiting abnormal eating behaviour (Anorexia Nervosa or Bulimia Nervosa). G. If the person is under 18, the disturbance does not meet the criteria for Avoidant Disorder of Childhood or Adolescence.	F. The fear or avoidance is not due to the direct effects of substance (e.g., drugs of abuse, medication) or medical condition, and is not better accounted for by Panic Disorder with or without Agoraphobia, Separation Anxiety, Body Dysmorphic Disorder, a Pervasive Developmental Disorder, of Schizoid Personality Disorder. G. If a general medical condition or other mental disorder is present, the fear in A is unrelated to it, e.g. the fear is not of stuttering, trembling, (in Parkinson's disease) or exhibiting abnormal eating behaviour (in Anorexia Nervosa or Bulimia Nervosa).

Appendix B

ICD-10 Criteria for Social Phobia

Definition: Fear of scrutiny by other people leading to avoidance of social situations. More pervasive social phobias are usually associated with low self-esteem and fear of criticism. They may present as a complaint of blushing, hand tremor, nausea, or urgency of micturition, the patient sometimes being convinced that one of these secondary manifestations of their anxiety is the primary problem. Symptoms may progress to panic attacks.

All of the following criteria should be fulfilled for a definite diagnosis:

(a) the psychological, behavioral, or autonomic symptoms must be primarily manifestations of anxiety and not be secondary to other symptoms such as delusions or obsessions thoughts;

(b) the anxiety must be restricted to or predominated in particular social situations; and

(c) the phobic situation is avoided whenever possible

Appendix C: Definiton of Childhood Adversity Variables for All Respondents

Childhood Adversity	Definition
Juvenile justice involvement	Any involvement with juvenile justice system
Child welfare involvement	Any involvement with child welfare
Running away from home	Running away from home for a day or overnight
Presence of at least one childhood problem (Summary variable of Juvenile justice or Child welfare involvement or Running away from home)	These problems occurred before age 16 and include: being in a police station, jail, being in court, staying in a detention centre, foster or group home, talking to child welfare about a problem at home, running away from home for one day or overnight
Lack of close relationship with an adult	Includes those who answered negatively to: "Did you have a close and confiding relationship with either your parent or with some other adult during your childhood?"
Marital conflict in the family of origin	Includes those who answered positively to: "Did your parents or the people who raised you have serious problems getting along?"
Parental death	Death of a parent before age 16
Parental history of mental illness	Parents had potential problems with emotions or nerves or the use of alcohol or drugs
Presence of at least on negative event (Summary Variable of Lack of close relationship, Marital conflict, Parental death and Parental History of Mental Illness)	These events occur before age 16 and include: Lack of close relationship with a parent or adult, Marital conflict in family of origin, Parental Death, Parental history of mental disorder
Social class of parents	blue collar worker versus white collar worker
Birth Order	" Were you the oldest or the youngest (or in between)?"
Mobility	includes those who answered 3 or more to "How many times before age 16, did you move to a place far enough away from your previous home that you had to make all new friends - not just a move across the street but to a totally new neighborhood?"

Rural	**includes those who were raised in a small town or away from any towns or cities**
Physical abuse	**Includes those who answered often or sometimes to "How often did any adult do any of the following things to you: kicked, bit or punched you; hit you with something; choked, burned or scalded you; physically attacked you in some other way?"**
Sexual abuse	**Includes those who answered positively to these questions, " When you were growing up, did any adult ever do any of these things to you against your will: threatened to have sex with you; touched the sex parts of your body; tried to have sex with you or sexually attacked you?"**
Any abuse (Summary Variable for Physical and Sexual Abuse)	**Combined information from the variables, physical and sexual abuse.**
Failing - Grade 1 to 3	**Includes those that answered positively to " Ever failed in school before grade 4?"**
Failing after Grade 3	**Includes those who report failing after grade 3**
Special education - before age 9	**Includes those that report having had full or part-time special education classes (excluding french emersion, ethnic or gifted programs) before age 9.**
Special education after grade 4	**Includes those that report having had full or part-time special education classes after age 9.**
Ever failed a grade or had special education (Summary Variable for Failing a grade or Special Education)	**Combination of failing a grade and special education variables.**
Left school before completing high school	**Left school without a graduation certificate from high school.**

Appendix D

Definiton of Additional Childhood Adversity Variables for Respondents Currently Attending Elementary of High School

Childhood Adversity	Definition
Lack of participation in extra school activities	Those who answered negatively to "Outside of regular physical education classes at school, did you take part in any sports during the past 6 months which involved adult coaching or instruction? Outside of regular classes at school, did you take any lessons or instruction during the past 6 months in music, dance or other non-sport activities?"
Positive School Atmosphere	A score of 4 indicates that a student responded positively to the following four questions about their school: 1. Teachers really care about student's school work. 2. Most students really want to do good work. 3. The appearance of your school is clean, attractive and inviting. 4. Many students are really enthusiastic about involvement in extracurricular activities such as sports, band and drama.
Negative School Atmosphere	Score of 3 means negative responses to 3 of the questions listed above

Appendix E

Ontario Health Survey and Supplement Response (Boyle et al., 1996)

SAMPLE	NUMBER and PERCENTAGE
Ontario Health Survey	
Total households	14758
Participating households	13,002 (88.1%)
Non participating households	1,756 (11.0%)
No contact	660 (4.5%)
Refusal	553 (3.7%)
Sickness, death , language	368 (2.5%)
Other	175 (1.2%)
Mental Health Supplement	
Total households	13002
Total eligible individuals	35690
Total individuals selected	13002
Participating individuals	9,953 (76.5%) (67.4% of original sample)
Nonparticipating individuals	3,049 (23.5%)
No contact	744 (5.7%)
Refusal	751 (5.8%)
Sickness, death , language	431 (3.3%)
Document destroyed	845 (6.5%)
Other	278 (2.1%)

Appendix F

Inter-rater reliabitity (n=575) across all centres (Wittchen et al. 1991)

Diagnosis	Kappa	Percentage Agreement
Organic brain syndrome	0.9	98.3
Any depressive disorder	0.95	97.6
Dysthymia	0.96	99
Major depression - single	0.97	99.7
Major depression - recurrent	0.93	97.4
Bipolar disorder - I	0.92	99.5
Bipolar disorder - II	0.94	99.5
Obsessive-compulsive disorder	0.94	98.6
Panic Disorder	0.94	98.4
Generalised anxiety	0.96	97.9
Any phobic disorder	0.98	98.8
Agoraphobia	0.99	99.5
Agoraphobia with panic attacks	0.94	98.3
Simple phobia	0.95	97.9
Social phobia	0.97	99.1
Somatisation	0.67	99.7
Schizophrenic disorder	0.91	98.8
Schizophreniform disorder	0.89	99.7
Anorexia nervosa	0.8	99.8
Tobacco dependence/abuse	0.98	99.3

Appendix G

Section of Interview Dealing with Social Phobia

Some people have such an unreasonably strong fear of doing things on this list that they avoid them altogether or feel extremely uncomfortable about doing them. Have you ever had such an unreasonably strong fear of speaking in public?
1 Yes
2 No
9 Missing
♿ Not applicable

Have you ever had such an unreasonably strong fear of having to use the toilet when away from home?
1 Yes
2 No
9 Missing
♿ Not applicable

Have you ever had such an unreasonably strong fear of eating or drinking in public?
1 Yes
2 No
9 Missing
♿ Not applicable

Have you ever had such an unreasonably strong fear of talking to people because you might have nothing to say or might sound foolish?
1 Yes
2 No
9 Missing
♿ Not applicable

Have you ever had such an unreasonably strong fear of writing while someone watches?
1 Yes
2 No
9 Missing
♿ Not applicable

Have you ever had such an unreasonably strong fear of talking in front of a small group of people?
1 Yes
2 No
9 Missing
♿ Not applicable

Interviewer check item:if respondent has social phobia?
1 Yes
2 Otherwise
9 Missing
♿ Not applicable

Did any of the social phobia ever continue for months or even years?
1 Yes
2 No
9 Missing
♿ Not applicable

Was this because you always avoided (this/these) situation(s)?
1 Yes
2 No
9 Missing
♿ Not applicable

How much did (this/these) fear(s) on page 3 ever interfere with your life or activities?
1 A lot?
2 Some?
3 A little?
4 Not at all?
9 Missing
⅛ Not applicable

How much did avoiding the situation(s) (FROM C26) ever interfere with your life or activities?
1 A lot?
2 Some?
3 A little?
4 Not at all?
5 Never avoided situation(s)
9 Missing
⅛ Not applicable

Interviewer check item:
1 If one or more "Yes" responses in C28-C32, or answer is "A lot" in C33 or C34
2 Otherwise
9 Missing
⅛ Not applicable

When was the first time you had (this/any of these) fear(s) (like speaking in public, use toilet when away from home, eating and drinking in public etc) --in the past month, past six months, past year or more than a year ago?
1 Past month
2 Past six months
3 Past year
4 More than a year ago
Missing
Not applicable

How old were you the first time [you had (this/any of these fear(s)]?
01 - 98 Years
99 Missing
⅛ Not applicable

When was the last time had(this/these)fear(s) (like speaking in public, use toilet when away from home, eating and drinking in public etc)--in the past month, past six months, past year or more than a year ago?
1 Past month
2 Past six months
3 Past year
4 More than a year ago
9 Missing
⅛ Not applicable

How old were you the last time?
01 - 98 Years
99 Missing
⅛ Not applicable

Did (this/these) unreasonable fear(s) (like speaking in public, use toilet when away from home, eating and drinking in public etc) ever keep you from completing a task at home or work, taking on new responsibilities, or taking on a new job?
1 Yes
2 No
9 Missing
⅛ Not applicable

Did you ever tell a doctor other than a psychiatrist about your unreasonably strong fear(s)?
1 Yes
2 No
9 Missing
⅛ Not applicable

Did you ever tell any other professional about (it/them) [other professionals include psychiatrists, psychologists, social workers, nurses,rabbis, priests, ministers, counsellors and others, like chiropractors] ?
1 Yes
2 No
9 Missing
⅛ Not applicable

How old were you the first time [you told any other professional about (it/them)] ?
01 - 98 Years
99 Missing
⅛ Not applicable

Did you ever take medication more than once because of (this/these) fear(s) ?
1 Yes
2 No
9 Missing
⅛ Not applicable

How old were you the first time [you took medication more than once because of (this/these) fear(s)]?
01 - 98 Years
99 Missing
⅛ Not applicable

Were you ever very upset with yourself for having (this/any of these) fear(s)?
1 Yes
2 No
9 Missing
⅛ Not applicable

Did (it/any of them) ever keep you from going to a party,social event or meeting?
1 Yes
2 No
9 Missing
⅛ Not applicable

When you were in (this/these) situation(s) or were thinking about (it/them), did it almost always make you extremely nervous or panicky, make you sweat, your heart pound, or make you short of breath?
1 Yes
2 No
9 Missing
⅛ Not applicable

When you had to be in (this/these) situation(s), did you blush or shake, feel like vomiting, or were you afraid of doing something very embarrassing?
1 Yes
2 No
9 Missing
⅛ Not applicable

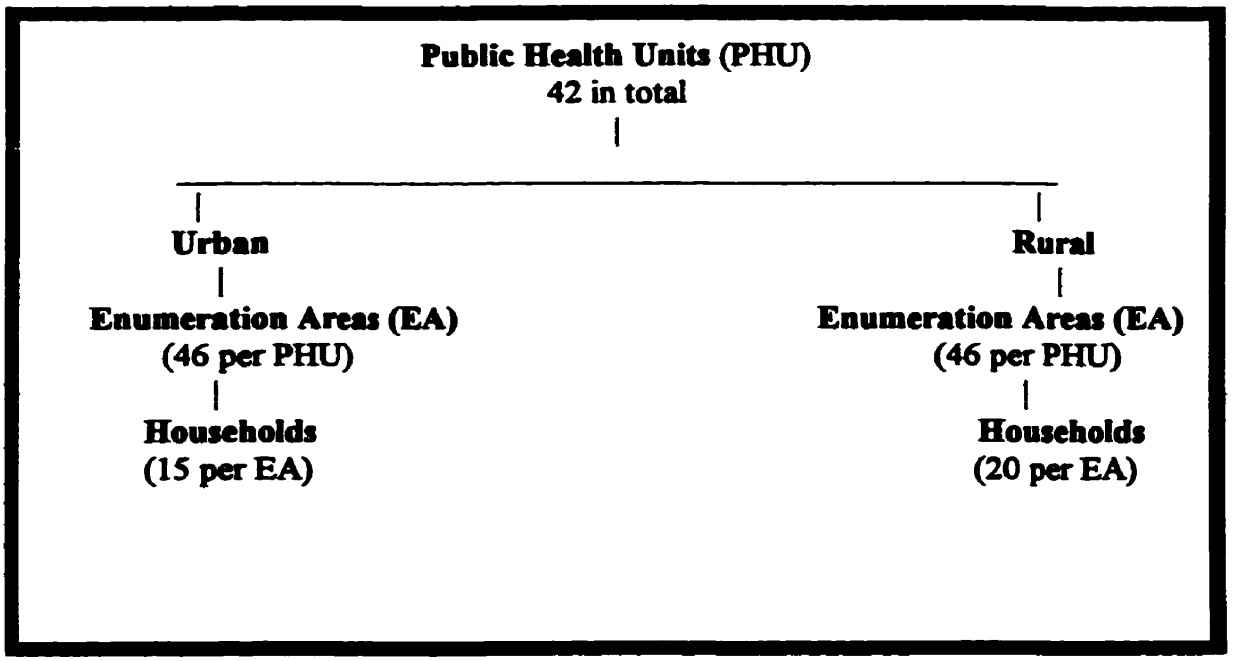

Figure 1: Design of the Ontario Health Survey (Boyle et al., 1996)

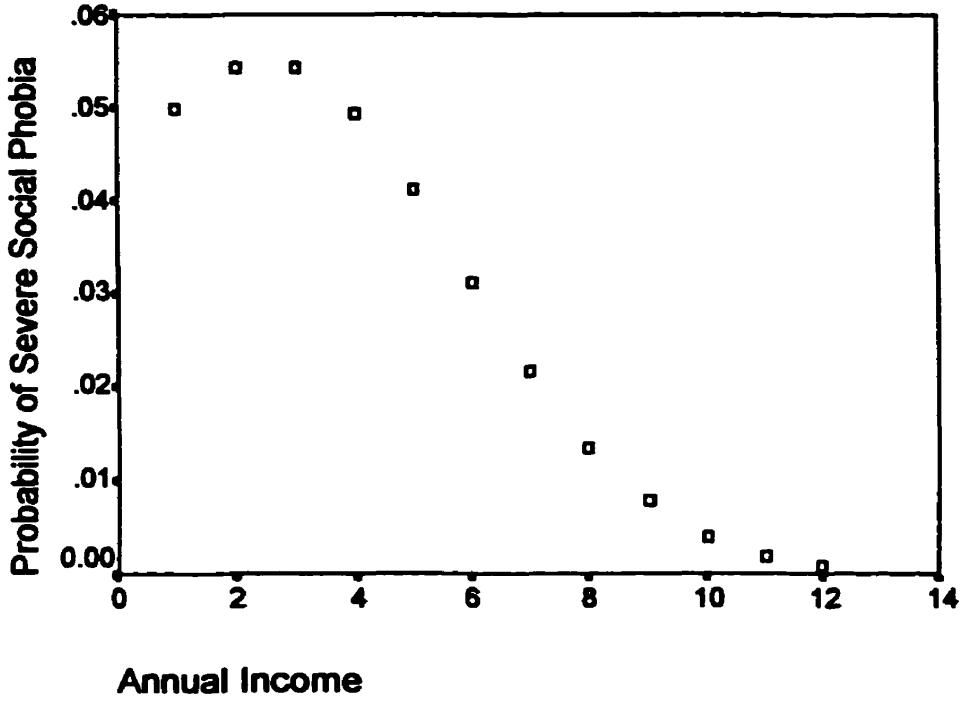

Figure 2. The relationship between personal annual income and probability of severe social phobia. Controlled for marital status and age
1 - no income, 2 - less than $3,000, 4 - $6,000 to $12,000, 6 - $20,000 to $29,000, 8 - $40,000 to $49,000, 10 - $60,000 to $69,000, 12 - over $80,000

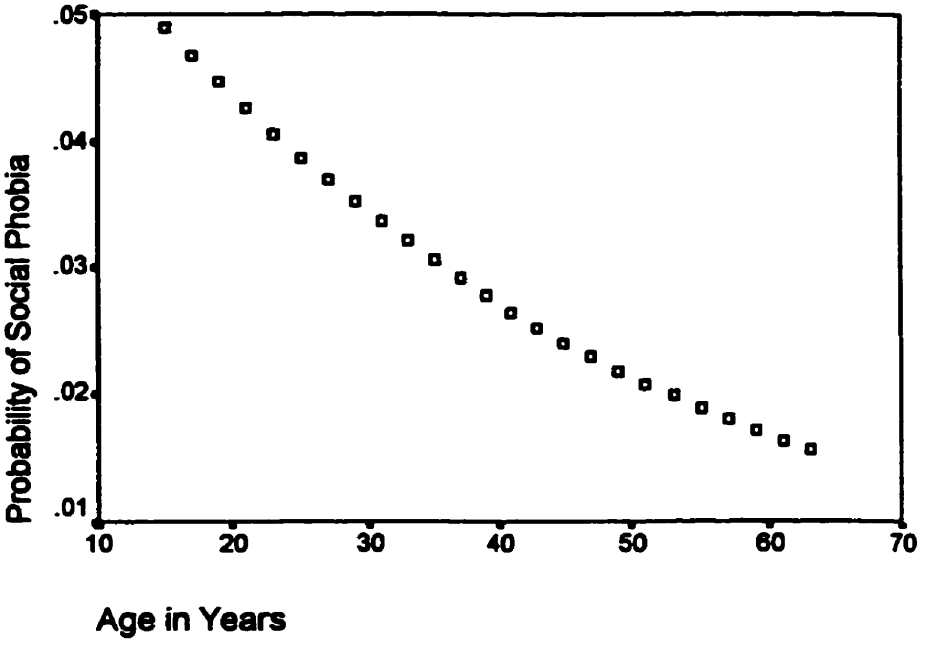

Figure 3. Relationship between age and severe social phobia for married or previously married respondents. Based on logistic regression model and controlled for personal income

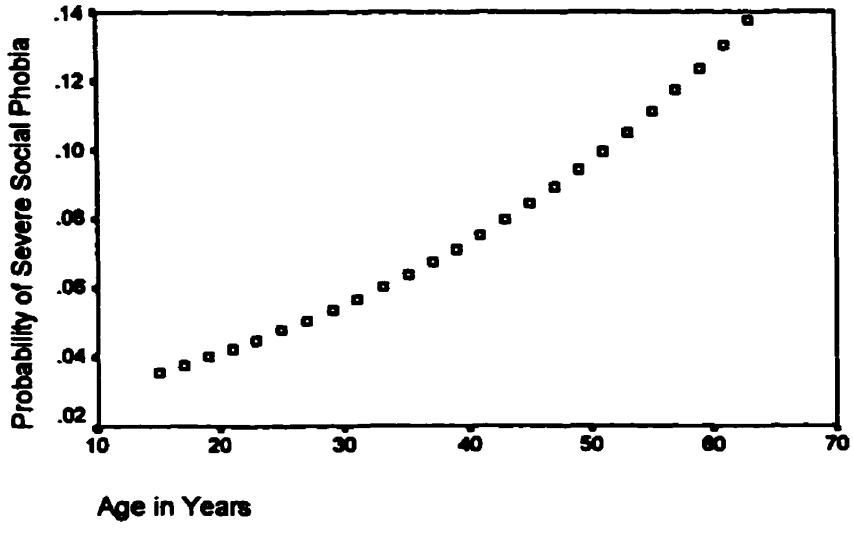

Figure 4. Relationship between age and severe social phobia for single respondents. Based on logistic regression model and controlled for personal income.

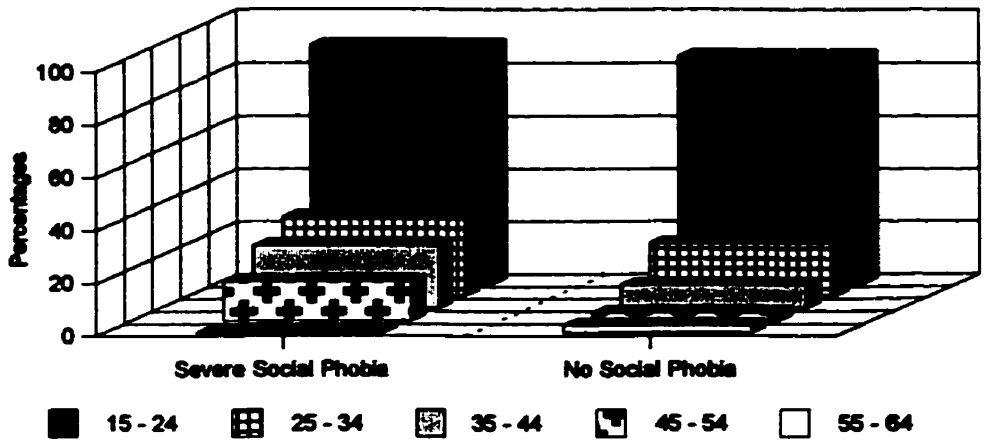

Figure 5. Comparison of age and marital status for severe social phobia and no social phobia. Uncontrolled for personal income
The 15 - 24 age group has the highest proportions of single individuals for both social phobia and no social phobia. In age groups higher than 25, individuals with social phobia are less likely to be married relative to individuals without social phobia.

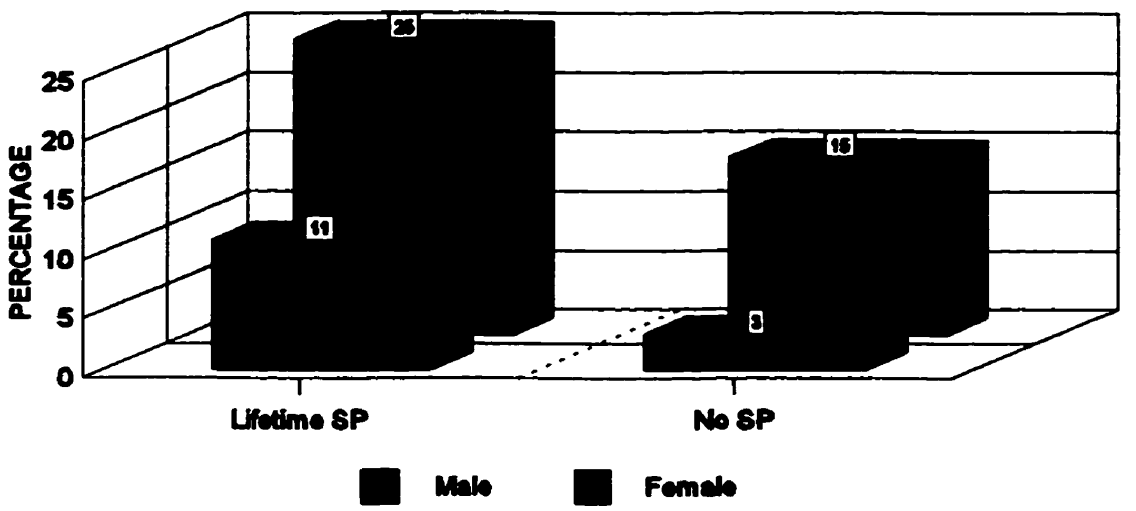

Figure 6. Comparison of percentages of male and female with and without social phobia respondents having lifetime history of alcohol abuse

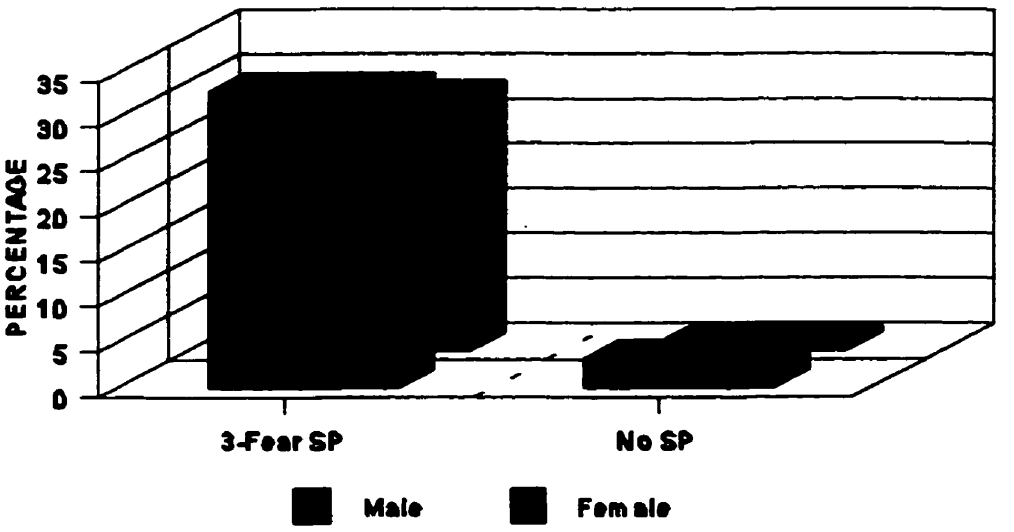

Figure 7. Comparison of percentages of male and female with and without social phobia respondents having lifetime history of agoraphobia

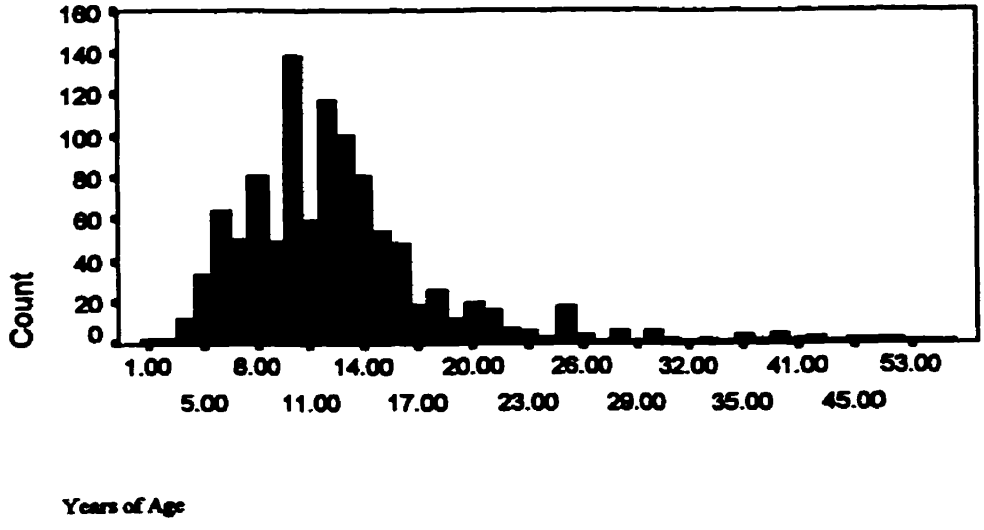

Figure 8. Age of onset distribution for current (12-month) social phobia

Table 1. Prevalence Rates of Social Phobia - Early Epidemiologic Studies

Study	Author	Age Group	Instrument	Current	Lifetime
Edmonton Survey, Canada	Bland et al., 1988	18 and over	DIS - DSM-III	1.2% 6 month	1.7%
Epidemiological Catchment Area Study, United States	Regier et al., 1988	18 and over	DIS - DSM-III	1.5 % 6 month	2.5%
Munich Follow-up	Wittchen et al., 1992	18 - 57	DSM-III	4.1% 6 month * - for simple and social phobia together	8.1%* * - for simple and social phobia together
Zurich	Degonda and Angst, 1993	30	SPIKE DSM-III	4.4 %	5.3%
Savigny, France	Lépine and Lellouch, 1995	18 and over	Modified DIS/CIDI		4.1%
Pooled data	Weissman et al., 1996	18 - 64	DIS-Korea -Puerto Rico -Edmonton -US(ECA)		0.5% 1.0% 1.7% 2.6%
Taipei, Taiwan	Hwu et al., 1989		DIS		0.6%
Iceland	Stefansson et al., 1991	all 55 -57 in population	DIS		3.5%
Christ Church, New Zealand	Wells et al., 1989		DIS		3.0%
Florence, Italy	Faravelli et al., 1989		SADS-L - based on DSM-III ** respondents could only be given 1 diagnosis	0.45%	0.99%

Table 2. Prevalence Rates of Social Phobia - Recent Epidemiologic Studies

Study	Author	Age Group	Instrument	Current	Lifetime
Early Development Stages of Psychopathology (EDSP)	Wittchen et al., 1998	14 - 24	M-CIDI DSM-IV	2.6% 5.2% subthreshol 12 month	3.5% 7.3% subthreshol
Dutch Adolescents	Verhulst et al., 1997	13 -18 yrs	DISC-P DISC-C	9.2 % (6 month)	
Basle, Switzerland	Wacker et al., 1992	18 - 65	CIDI - DSM-III-R		16%
Basle, Switzerland	Wacker et al., 1992	18 - 65	CIDI - ICD-10		9.6%
National Comorbidity Survey	Kessler et al., 1994	15 - 54 yrs	CIDI - DSM-III-R	7.9% (12 month)	13.3%
Winnipeg, Canada	Stein et al. , 1994	18 and over	DSM-III-R	7.1% (current))	
Ontario Health Survey	Offord et al., 1996	15 - 64 yrs	CIDI - DSM-III-R	6.7 % (12 month)	

Table 3. Socio-demographic Characteristics for Social Phobia Summary of Epidemiologic Studies

Study	Author	Gender	Age	SES	Education	Marital	Other
Edmonton Survey	Dick et al., 1994	50% - F	stable until 54, then declines				
Epidemiological Catchment Area	Schneier et al., 1992	70% -F	higher in 18-29	higher in lower quartile	higher in incomplete high school	lower in married	
Munich Follow-up - social & simple	Wittchen et al.,1992	67% - F	Higher in 25-44				
Zurich study	Dedonda and Angst, 1993	65% - F				less often livingwith partner	
Savigny, France	Lépine et al., 1995	Higher in F	higher in younger age group		higher in lower education	slightly higher in widowed, divorced or separated	
4 Pooled	Weissman et al., 1996	higher in F					
Dutch Adolescents 13-18 yr old	Verhulst et al., 1997	higher in F					
National Comorbidity Survey	Kessler et al., 1994 Magee et al., 1996	58% - F	highest in 15-24	higher in lower SES higher in those not working	higher in lower education	higher in never married	higher in students, living with parents, those working at home

Table 4. Comorbidity of Social Phobia and Anxiety Disorders Summary of Epidemiologic Studies

Study	Author	Simple Phobia	Agora-Phobia	Panic Disorder	Generalized Anxiety	PTSD	OCD
Edmonton Survey -prevalence ratio	Dick et al., 1994	-	-	14.3 (14)	-	-	6.3 (17)
Epidemiological Catchment Area	Schneier et al., 1992	9.2 (59)	12 (45)	3.24 (5)	-	-	4.36 (11)
Zurich, Switzerland	Angst, 1993	5.8	16.7	3.1	5.8	-	
Savigny, France	Lépine et Pélissolo, 1996	m-9.4 F-3.5	1.4 5.1	29.0 3.8	6.2 3.2		
National Comorbidity Survey	Magee et al., 1996	7.75 (38)	7.06 (23)	4.83 (11)	3.8 (13)	2.7 (16)	-

The raw percentages shows the actual rates of overlapping disorders and the odds ratio reflects what could be expected if all the other variables were stable. The odds ratios are displayed first and the raw percentages are reported when possible in brackets.

Table 5. Comorbidity of Social Phobia Affective Disorders and Substance Abuse Summary of Epidemiologic Studies

Study	Author	Depression	Dysthmia	Alcohol Abuse Alcohol Dep.	Drug Abuse Drug Dep.	Bipolar
Edmonton Survey -prevalence ratio	Dick et al., 1994	2.5 (21)	3.7 (13)	2.0 (35)	3.7 (24)	8.0 (4)
Epidemiological Catchment Area	Schneier et al., 1992	4.41 (17)	4.3 (13)	2.2 (19)	2.85 (13)	4.09 (5)
Zurich, Switzerland	Angst, 1993	2.5 or 2.8	2.8or 3.4	3.5	2.1	
Savigny, France	Lépine et Pélissolo, 1996	12.5 2.7	-			
National Comorbidity Survey	Magee et al., 1996	3.65 (37)	3.15 (15)	AA - 1.2 (11) AD - 2.2 (24)	DA - 1.2 (5) DD - 2.6 (15)	4.60 (5)

The raw percentages shows the actual rates of overlapping disorders and the odds ratio reflects what could be expected if all the other variables were stable. The odds ratios are displayed first and the raw percentages are reported when possible in brackets.

Table 6. Age of Onset of Social Phobia Epidemiologic Studies

Study	Author	Age of Onset	Relative to other Disorders
Edmonton Survey	Bland et al., 1988	9.5 yrs old	
Epidemiological Catchment Area	Regier et al., 1988 Schneier et al., 1992	15.5 yrs old	76.8% preceded other psych disorders
4 Pooled	Weissman et al., 1996	14.6 in Canada to 24.3 in Korea	50-81% preceded another psych disorders
Munich Follow-up - social & simple	Wittchen et al., 1992		Anxiety preceded Dep in 2/3 of cases
Savigny, France	Lépine and Lellouch, 1995	Bimodal - all my life & 11-20 years old	
National Comorbidity Survey	Magee et al., 1996	16 yrs old	52.6% preceded other psych disorders

Table 7. Socio-demographic Characteristics (12-month) Social Phobia and No Social Phobia in MHS-OHS

(Controlling for age, sex and education when appropriate)

Characteristic	Social Phobia n=566	No Social Phobia n=6170	Odds Ratio	Confidence Interval
Age 15 - 24 yrs	33%	21%	1.03 per year (1.34 per 10 years)	1.02 - 1.04
25 - 34 yrs	31%	26%		
35 - 44 yrs	17%	23%		
45 - 54 yrs	10%	16%		
55 - 64 yrs	8%	14%		
Sex - Female	59%	48%	1.52	1.16 - 1.98
Education - grade only	42%	30%	1.65	1.22 - 2.22
- high sch	22%	26%	1.07 - NS	0.73 - 1.53
- post HS	35%	43%	1.00	
Personal Income			1.06 per level (12 levels in total)	1.00 - 1.23
less than $6,000	33%	22%		
$6,000 - $30,000	42%	36%		
$30,000 - $60,000	19%	30%		
over $60,000	4%	8%		
don't know, refused	0%	3%		
Marital Status Single	40%	26%	1.23 - NS	0.87 - 1.75
- Married	54%	68%		
- Previously Married	6%	6%		
Work Status				
Working for pay	55%	65%	0.89 - NS	0.64 - 1.27
School	24%	13%	1.10 - NS	0.68 - 1.77
Homemaker	11%	12%	1.00	
Unemployed, unable to work, retired, other	10%	10%	1.00	
Urban	87%	87%	0.85 - NS	0.65 - 1.11
Immigrated to Canada	21%	27%	0.81 - NS	0.58 - 1.12
Lives Alone	8%	6%	1.56 - NS	0.96 - 2.15

Table 8. Socio-demographic Characteristics for Severe Social Phobia and No Social Phobia in MHS-OHS

(Controlling for age, sex and education when appropriate)

Characteristic	Social Phobia n = 185	No Social Phobia n = 6710	Odds Ratio	Confidence Interval
Age 15 - 24 yrs	35%	21%	Interaction with Marital Status	
25 - 34 yrs	36%	26%		
35 - 44 yrs	13%	23%		
45 - 54 yrs	7%	16%		
55 - 64 yrs	10%	14%		
Sex - Female	58%	48%	1.48 - NS	0.95 - 2.29
Education - grade only	48%	30%	1.86	1.14 - 3.04
- high sch	18%	26%	0.89 - NS	0.47 - 1.67
- post HS	35%	43%	1.00	
Personal Income			curvilinear relationship	
less than $6,000	37%	22%		
$6,000 - $30,000	50%	36%		
$30,000 - $60,000	13%	30%		
over $60,000	0%	8%		
Don,t know, refused	0%	3%		
Marital Status Single	46%	26%	Interaction with Age	
- Married	47%	68%		
- Previously Married	7%	6%		
Work Status				
Working for pay	51%	65%	0.65 - NS	0.38 - 1.12
School	24%	13%	0.84 - NS	0.40 - 1.79
Homemaker	13%	12%	1.00	
Unemployed, unable to work, retired	11%	9%	1.00	
Urban	89%	87%	1.09 - NS	0.69 - 1.73
Immigrated to Canada	14%	27%	0.59 - NS	0.32 - 1.07
Lives Alone	10%	6%	1.95 - NS	0.93 - 4.09

Table 9. Socio-demographic Characteristics for Speaking-Only Social Phobia and Complex Social Phobia in MHS-OHS

(Controlling for age, sex and education when appropriate)

Characteristic	Speaking only n = 239	Complex n = 387	Odds Ratio	Confidence Interval
Age 15 - 24 yrs	32%	35%	1.01 - NS	0.99 - 1.03
25 - 34 yrs	29%	34%	(per level)	
35 - 44 yrs	21%	14%		
45 - 54 yrs	9%	11%		
55 - 64 yrs	8%	7%		
Sex - Female	58%	60%	1.11 NS	0.66 - 1.85
Education - grade only	39%	44%	1.00	
- high sch	20%	24%	1.00	
- some post HS	15%	20%	1.00	
- finish post HS	25%	11%	2.62	1.31 - 5.23
Personal Income			Curvilinear	
less than $6,000	33%	34%	relationship	
$6,000 - $30,000	37%	46%		
$30,000 - $60,000	19%	19%		
over $60,000	7%	1%		
Don,t know, refused	4%	0%		
Marital Status Single	36%	43%	0.69 - NS	0.36 - 1.33
- Married	58%	50%		
- Previously Married	6%	6%		
Work Status				
Working for pay	55%	56%	1.42 - NS	0.71 - 2.83
School	26%	21%	2.57 - NS	0.98 - 6.74
Homemaker	9%	12%	1.00	
Unemployed, unable to work, retired, other	10%	10%	1.00	
Urban	85%	89%	0.71 - NS	0.33 - 1.52
Immigrated to Canada	26%	17%	2.23	1.17 - 4.23
Lives Alone	6%	8%	0.62 - NS	0.23 - 1.63

Table 10. Lifetime Comorbid Disorders for Lifetime Social Phobia and No Social Phobia in MHS-OHS

(controlling for age, sex and education)

Disorder	Social Phobia n = 1052	No Social Phobia n = 7083	Odds Ratio	Confidence Interval
Simple Phobia	25.4%	6.1%	4.86	3.70 - 6.39
Agoraphobia	13.2%	1.9%	7.2	4.88 - 10.64
Panic Disorder	5.8%	1.1%	5.12	2.99 - 8.77
Generalized Anxiety	7.4%	1.1%	6.78	4.14 - 11.10
Dysthymia	8.8%	1.2%	8.24	5.09 - 13.35
Major Depression	18.8%	6.5%	3.2	2.41 - 4.26
Manic Disorder	4.0%	0.4%	8.95	4.31 - 18.57
Bulimia Nervosa	1.8%	0.5%	3.14	1.33 - 7.42
Antisocial Personality Disorder	3.2%	1.5%	2.15	1.12 - 4.12
Adult Antisocial Behaviour	1.6%	0.4%	4.68	1.70 - 12.90
Alcohol Abuse or Dependence	16.3%	9.6%	2.19	1.64 - 2.93
Cannabis Abuse or Dependence	5.4%	2.7%	2.19	1.37 - 3.50
Other Substance Abuse or Dependence	1.6%	1.0%	2.32	1.15 - 4.70

Table 11. Lifetime Comorbid Disorders for Lifetime Severe Social Phobia and No Social Phobia in MHS-OHS

(controlling for age, sex and education

Disorder	Severe Social Phobia n = 265	No Social Phobia n = 7071	Odds Ratio	Confidence Interval
Simple Phobia	35.7%	6.1%	8	5.16 - 12.40
Agoraphobia	31%	1.9%	22.96	13.85 - 38.06
Panic Disorder	13.0%	1.1%	12.44	6.32 - 24.48
Generalized Anxiety	16.0%	1.1%	16.12	8.67 - 29.96
Dysthymia	15.3%	1.2%	14.99	7.92 - 28.38
Major Depression	35.2%	6.5%	7.85	5.13 - 11.99
Manic Disorder	10%	0.4%	21.85	9.53 - 50.09
Bulimia Nervosa	4.2%	0.5%	6.95	1.32 - 20.08
Antisocial Personality	8.2%	1.5%	5.35	2.41 - 11.89
Adult Antisocial Behaviour	4.5%	0.4%	12.67	4.08 - 39.32
Alcohol Abuse or Dependence	23.1%	9.6%	3.55	2.21 - 5.69
Cannabis Abuse or Dependence	9.8%	2.7%	4.11	2.12 - 7.97
Other Substance Abuse or Dependence	4.2%	1.0%	3.98	1.49 - 10.63

Table 12. Lifetime Comorbid Disorders for Speaking Social Phobia and Complex Social Phobia in MHS-OHS

(controlling for age, sex and education)

Disorder	Speaking Only Social Phobia n=565	Complex Social Phobia n= 475	Odds Ratio	Confidence. Interval
Simple Phobia	19.5%	31.5%	1.84	1.18 -2.89
Agoraphobia	6.6%	21.5%	4.04	2.18 - 7.50
Panic Disorder	1.8%	16.7%	6.48	2.32 - 18.07
Generalized Anxiety	3.4%	12.4%	4.16	1.86 - 9.33
Dysthymia	5.6%	1.2%	2.62	1.30 - 5.29
Major Depression	8.5%	31.2%	5.41	3.13 - 9.35
Manic Disorder	1.6%	7.0%	4.32	1.43 - 13.04
Bulimia Nervosa	0.4%	3.6%	10.35	1.18 - 90.76
Antisocial Personality	0.8%	6.0%	8.15	1.59 - 41.66
Adult Antisocial Behaviour	0.2%	3.2%	18.65 - NS	0.87 - 400.54
Alcohol Abuse or Dependence	11.3%	22.4%	2.42	1.44 - 4.05
Cannabis Abuse or Dependence	2.8%	8.6%	3.66	1.49 - 9.00
Other Substance Abuse or Dependence	0.9%	4.0%	4.2	1.00 - 17.55

Table 13. Mean Ages of Onset of Social Phobia

Groups of Social Phobia	Mean Age of Onset	Confidence Intervals
All cases	13	12.6 - 13.4
Severe	13.6	12.6 - 14.6
Speaking only	12.7	12.2 - 13.2
One fear other than speaking	12.7	12.7 - 13.4

Table 14. Proportions of Ages of Onset of Social Phobia relative to those of Comorbid Disorders in OHS-MHS

Comorbid Disorder	All cases SP before disorder (1)	All cases SP after disorder (2)	Severe SP before disorder (1)	Severe SP after disorder (2)	Speaking SP before disorder (1)	Speaking SP after disorder (2)	Other fears SP before disorder (1)	Other fears SP after disorder (2)
Simple Phobia	27 (21 - 32)	56 (50 - 62)	29 (20-38)	49 (39 - 60)	23 (14-31)	65 (55 - 74)	30 (22-37)	51 (43 - 59)
Agoraphobia	44 (36-52)	18 (12 -25)	36 (26-47)	21 (12 - 30)	59 (39-80)	9 (0 - 21)	42 (33-50)	20 (13 - 28)
Panic Disorder	49 (37-61)	23 (13 - 33)	38 (23-54)	31 (16 - 45)	83 (62-100)	0	42 (29-55)	28 (16 - 40)
Generalized Anxiety	63 (52-74)	18 (10 - 27)	59 (42-76)	9 (0 - 19)	76 (58-94)	14 (0 - 29)	58 (45-71)	22 (11 - 33)
Dysthymia	68 (57-78)	14 (6 - 22)	69 (54-84)	11 (1 - 21)	84 (68-100)	5 (0 - 15)	62 (48-75)	17 (7 - 28)
Major Depression	74 (68-80)	16 (11 - 21)	70 (60-80)	16 (8 - 24)	84 (74-94)	13 (4 - 21)	69 (62-77)	18 (11 - 24)
Manic Disorder	67 (54-81)	20 (8 - 31)	69 (51-87)	15 (2 - 29)	100	0	59 (44-75)	24 (10 - 38)
Bulimia Nervosa	59 (39-80)	27 (9 - 46)	58 (30-86)	25 (1 - 50)	67 (13-100)	33 (20 - 87)	58 (36-80)	26 (7 - 46)
Alcohol Abuse or Dependence	79 (74-84)	17 (12 - 22)	79 (69-88)	17 (9 - 26)	83 (76-91)	12 (5 - 19)	76 (69-84)	19 (13 - 26)
Cannabis Abuse or Dependence	81 (72-90)	13 (5 - 21)	81 (64-98)	10 (0 - 22)	88 (74-100)	4 (0 - 12)	79 (67-91)	16 (5 - 27)
Other Substance Abuse or Dependence	82 (69-94)	11 (01 - 20)	85 (65-1.04)	8 (0 - 22)	77 (23-100)	8 (0 - 22)	88 (74-100)	8 (0 - 19)

(1) The percentage of cases where the age of onset of social phobia precedes the age of onset of the comorbid disorder along with confidence intervals.
(2)The percentage of cases where the age of onset of the comorbid disorder precedes the age of onset of social phobia along with confidence intervals.

All cases of SP= All lifetime cases of Social Phobia
Severe SP = Cases of lifetime SP that endorse 3 or more social fears
Speaking SP = Cases of lifetime SP that have speaking fears only
Other fear SP = Cases that endorse at least one fear other than speaking

Table 15. Childhood Adversity in MHS-OHS of All cases of (12-month) Social Phobia, Females only, Males only and No Social Phobia
(Controlling for age, sex and education)

Childhood Adversities	S.P. n=566	No S.P. n = 6710	Odds Ratio All Cases	Odds Ratio Females only	Odds Ratio Males only
Presence of least one child problem	22%	8%	3.07 (2.20-4.29)	3.43 (2.15 - 5.46)	2.86 (1.76-4.65)
—— Juvenile justice involvement	6%	4%	1.82 (1.05-3.18)	1.18(0.36 - 3.82)NS	2.16 (1.15-4.06)
—— Child welfare involvement	10%	3%	2.7 (1.68-4.37)	4.17 (2.38 - 7.32)	.98(.32-2.93)NS
—— Running away from home	17%	5%	3.4 (2.33-4.96)	4.08 (2.47 - 6.73)	2.85 (1.59-5.12)
Presence of at least negative event	31%	15%	2.41 (1.81-3.25)	2.01 (1.35 - 2.98)	3.17 (2.05-4.91)
—— Lack of close relationship - adult	29%	15%	2.63 (1.96-3.55)	1.77 (1.15-2.73)	4.14 (2.70-6.36)
—— Marital conflict in family of origin	37%	23%	1.82 (1.38-2.39)	1.73 (1.21-2.48)	2.01 (1.31-3.07)
—— Parental Death	5%	8%	.62(.34-1.13) NS	.58(.22-1.52) NS	.70(.26-1.83) NS
—— Parental hx of mental disorder	52%	33%	2.13 (1.63-2.78)	2.55 (1.78-3.64)	1.75 (1.16-2.63)
Not being the first born	75%	69%	1.31(.97-1.78) NS	.89(.69-1.29) NS	2.50 (1.45-4.30)
Moving more than 3 times	13%	9%	1.63 (1.10-2.42)	1.69 (1.00-2.88)	1.63(.90-2.93)NS
Living in rural	43%	43%	1.12(.85-1.47) NS	1.08(.76-1.54) NS	1.22(.80-1.87)NS
Parental social class - blue collar	57%	56%	1.03(.76-1.40) NS	.98(.65-1.46) NS	1.10(.70-1.74)NS
Physical Abuse	20%	9%	2.54 (1.80-3.60)	2.66 (1.68-4.20)	2.49 (1.46-4.24)
Sexual Abuse	13%	7%	1.72 (1.18-2.74)	2.17 (1.38-3.42)	.69(.16-2.93)NS
Any Abuse	46%	29%	2.33 (1.78-3.06)	2.64 (1.85-3.77)	2.05 (1.35-3.11)
Failing - Grade 1 to 3 - After Grade 3 - Did not fail	15% 15% 66%	9% 16% 73%	1.99 (1.34-2.99) 1.15(.78-1.69)NS 1.00	2.32 (1.32-4.08) 1.04(.59-1.81)NS 1.00	1.78 (1.00-3.15) 1.25(.74-2.13)NS 1.00
Special Education - before 9 - after age 9 - no special education	4% 7% 90%	1% 2% 96%	2.97 (1.46-6.03) 2.71 (1.54-4.77) 1.00	2.03(.56-7.35)NS 2.44(.98-6.09)NS	3.46 (1.48-8.13) 3.02 (1.46-6.23) 1.00
Failing grade or special education	34%	26%	1.56 (1.17-2.09)	1.37(.91-2.06)NS	1.82 (1.19-2.76)
Left High School	37%	30%	2.08 (1.53 - 2.82)	1.89 (1.26-2.83)	2.41 (1.51-3.84)

Table 16. Comparison of Gender and Childhood Adversities

Childhood Adversities		Social Phobia. n=566	No Social Phobia n = 6710
First born	Male	16%	31%
	Female	31%	29%
	Combined	25%	31%
Child welfare involvement	Male	3.6%	3.1%
	Female	13.6%	3.2%
	Combined	9.5%	3.1%
Sexual Abuse	Male	1.9%	3.9%
	Female	19.8%	10.9%
	Combined	12.5%	7.3%
Juvenile Involvement	Male	13%	6%
	Female	2%	1%
	Combined	7%	4%
Special Education before age 9	Male	7%	2%
	Female	2%	1%
	Combined	4%	1%
Special Education after age 9	Male	10%	3%
	Female	4%	2%
	Combined	7%	2%
Close relationship - adult	Male	58%	83%
	Female	79%	86%
	Combined	71%	84%

Table 17. Childhood Adversity in MHS-OHS of (12-month) Social Phobia and No Social Phobia controlling for depression

(controlling for current depression as well as age, sex and education)

Childhood Adversities	Social Phobia n=566	No Social Phobia n = 6710	Odds Ratio	Confidence Level
Presence of at least one of child problem	22%	8%	2.66	1.85 - 3.84
—Juvenile justice involvement	6%	4%	1.58 NS	0.83 - 2.72
—Child welfare involvement	10%	3%	2.82	1.17 - 3.49
—Run away from home	17%	5%	2.7	1.77 - 4.13
Presence of at least one negative event	31%	15%	1.85	1.33 - 2.57
—Lack of close relationship - adult	29%	15%	2.19	1.58 - 3.05
—Marital conflict in family of origin	37%	23%	1.53	1.13 - 2.08
—Parental Death	5%	8%	1.81 NS	0.95 - 3.46
—Parental hx of mental disorder	52%	33%	1.63	1.22 - 2.19
Not being the first born	75%	69%	1.33 NS	0.96 - 1.86
Moving more than 3 times	13%	9%	1.58 NS	0.98 - 2.30
Living in rural	43%	43%	1.15 NS	0.86 - 1.53
Social class of parents - blue collar	57%	56%	1.16 NS	0.84 - 1.61
Physical Abuse	20%	9%	2.18	1.48 - 3.22
Sexual Abuse	13%	7%	1.25 NS	0.76 - 2.05
Any Abuse	46%	29%	1.97	1.46 - 2.64
Failing - Grade 1 to 3 - After Grade 3 - Did not fail	15% 15% 66%	9% 16% 73%	1.94 0.99 NS 1.00	1.27 - 2.96 0.66 - 1.54
Special Education - before age 9 - after age 9 - no special ed	4% 7% 90%	1% 2% 96%	2.45 2.68 1.00	1.12 - 5.42 1.49 - 4.86
Failing a grade or special education	34%	26%	1.43	1.05 - 1.97
Left High School	37%	30%	2.21	1.59 - 3.06

Table 18. Childhood Adversity in MHS-OHS of (12-month) Social Phobia and No Social Phobia for High School Students

(controlling for age and sex)

Adversity	Social Phobia n = 93	No Social Phobia n = 590	Odds Ratio	Confidence Interval
Lack of school participation	59%	39%	1.97	1.00 - 3.93
Positive Perception of School (1) - 4	15%	35%	1.59 per level	1.15 - 2.20
-3	41%	33%		
-2	22%	25%		
-1	22%	6%		
-0	0%	2%		
Negative Perception of School (2) - 0	60%	72%	1.64 per level	1.10 - 2.48
-1	20%	20%		
-2	18%	7%		
-3	2%	2%		

Questions about School Perception

1. Teachers really care about student's school work.
2. Most students really want to do good work.
3. The appearance of your school is clean, attractive and inviting.
4. Many students are really enthusiastic about involvement in extracurricular activities such as sports, band and drama.

(1)Positive Perception - A score of 4 indicates that a student responded "strongly agree" or "agree" to the four questions about their perception of school.

(2)Negative perception - A score of 3 means that a student responded "strongly disagree" or "disagree" to three of the four questions.

Table 19. Childhood Adversity in MHS-OHS of Severe Social Phobia and No Social Phobia
(Controlling for age, sex and education)

Childhood Adversities	Social Phobia n=185	No Social Phobia n = 6710	Odds Ratio	Confidence Interval
Presence of at least one chil problem	31%	8%	4.76	2.91 - 7.79
—Juvenile justice involvement	11%	4%	3.16	1.51 - 6.61
—Child welfare involvement	15%	3%	4.28	2.23 - 8.23
—Running away from home	22%	5%	4.69	2.78 - 8.13
Presence of at least one negative event	38%	15%	3.27	2.07 - 5.15
—Lack of close relationship with an adult	35%	15%	3.3	2.07 - 5.26
—Marital conflict in family of origin	47%	23%	2.76	1.77 - 4.28
—Parental Death	4%	8%	0.43 NS	0.13 - 1.40
—Parental hx of mental disorder	62%	33%	3.12	1.97 - 4.93
Not being the first born	77%	69%	1.46 NS	0.87 - 1.39
Moving more than 3 times	19%	9%	2.5	1.42 - 4.40
Living in rural	38%	43%	0.87 NS	0.55 - 1.39
Social class of parents - blue collar	53%	56%	0.83 NS	0.50 - 1.40
Physical Abuse	28%	9%	4.08	2.47 - 6.74
Sexual Abuse	20%	7%	3.16	1.75 - 6.11
Any Abuse	58%	29%	3.9	2.48 - 6.11
Failing - Grade 1 to 3 - After Grade 3 - Did not fail	25% 16%	9% 16% 73%	4.25 1.50 NS 1.00	2.43 - 7.42 0.79 - 2.84
Special Education - before age 9 - after age 9 - no special education	6% 7%	1% 2% 96%	4.38 2.90 1.00	1.67-11.48 1.21 - 6.98
Failing a grade or special education	42%	26%	2.25	1.41 - 3.59
Left High School	42%	30%	2.49	1.52 - 4.07

Table 20. Childhood Adversity in MHS-OHS in Speaking-Only Social Phobia and Complex Social Phobia

(Controlling for age, sex and education)

Childhood Adversities	Speaking Social Phobia n=239	Complex Social Phobia n=307	Odds Ratio	Confidence Interval
Presence of at least one child problem	14%	29%	2.35	1.22 - 4.52
Juvenile justice involvement	4%	9%	2.42 NS	0.75 - 7.81
Child welfare involvement	5%	13%	2.87	1.04 - 7.90
Running away from home	13%	20%	1.70 NS	0.84 - 3.45
Presence of at least one negative event	23%	36%	1.94	1.09 - 3.45
—Lack of close relationship - adult	27%	31%	1.25 NS	0.70 - 2.26
—Marital conflict in family of origin	28%	44%	2.18	1.26 - 3.77
—Parental Death	3%	6%	1.94 NS	0.56 - 6.76
—Parental hx of mental disorder	42%	60%	2.15	1.27 - 3.65
Not being the first born	76%	74%	1.03 NS	0.56 - 1.89
Moving more than 3 times	11%	16%	1.64 NS	0.75 - 3.53
Living in rural	46%	42%	0.77 NS	0.45 - 1.33
Social class of parents - blue collar	57%	57%	1.23 NS	0.67 - 2.28
Physical Abuse	13%	25%	2.18	1.09 - 4.38
Sexual Abuse	7%	17%	2.6	1.05 - 6.41
Any Abuse	31%	57%	3.13	1.79 - 5.48
Failing - Grade 1 to 3 - After Grade 3 - Did not fail	10% 11%	18% 18%	2.29 2.05 NS	1.03 - 5.09 0.94 - 4.47
Special Education - before age 9 - after age 9 - no special ed	2% 6%	6% 7%	4.02 NS 1.16 NS	0.79 - 20.46 0.40 - 3.37
Failing a grade or special education	29%	38%	1.53 NS	0.86 - 2.70
Left High School	30%	43%	2.05	1.13 - 3.72

Table 21. Prevalence rates of Speaking-Only and Complex Social Phobia

Social Phobia Subtype	National Comorbidity Survey	Ontario Health Survey
Speaking only	1.8% (23%)	2.9% (44%)
Complex	6.1% (77%)	3.8% (56%)
Total (12-month)	7.9% (100%)	6.7% (100%)

The first percentage represents the prevalence of social phobia in the general population.
The second percentage in brackets represents the proportion of individuals having the subtype of social phobia within the general group of individuals with the disorder.

Table 22. Comparison of Current Depression among Types of Social Phobia

Types of social phobia	N	Number of cases with Current depression*
All cases	566	82 (14%)
Severe	185	53 (29%)
Speaking	239	4 (2%)
Other than speaking fears	307	78 (25%)

* In brackets is the percentage of the group which is depressed.