SHY KIDS, PHOBIC ADULTS?

PSYCHIATRIC CORRELATES OF RETROSPECTIVELY RECALLED CHILDHOOD SHYNESS IN A NATIONALLY REPRESENTATIVE SAMPLE

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November 24, 2002

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SHY KIDS, PHOBIC ADULTS? PSYCHIATRIC CORRELATES OF RETROSPECTIVELY RECALLED CHILDHOOD SHYNESS IN A NATIONALLY REPRESENTATIVE SAMPLE

BY

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A Thesis/Practicum submitted to the Faculty of Graduate Studies of The University of Manitoba in partial fulfillment of the requirements of the degree of

Master of Arts

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Abstract

Several theoretical papers have suggested that shyness is an important factor in the development of social phobia. In short, shyness in children appears to be associated with the development of social phobia in adults. The present study investigated the relationship between adults' retrospective reports of extreme childhood shyness and adult social phobia as well as several other variables that have been implicated in the development of psychopathology (i.e. peer relations and maternal warmth) in a large nationally representative sample (N=5877). Retrospective reports of extreme shyness were significantly associated with social phobia in both males (odds ratio = 2.7) and females (odds ratio = 2.9). Diagnostic specificity issues were also investigated. It was determined that extreme shyness was a strong diathesis not only for social phobia but for a variety of anxiety and mood disorders. Multivariate logistic regression analyses were used to determine whether extreme shyness would remain a significant predictor of the anxiety and mood disorders after statistically controlling for the peer and parental variables. The findings supported the hypothesis that the extreme shyness diathesis shows specificity to social phobia, as it remained a significant significantly associated with social phobia but not with the other anxiety and mood disorders. The association between retrospective reports of extreme shyness and the distinct subtypes of social phobia (i.e. complex, or generalized, social phobia versus speaking-only, or non-generalized, social phobia) was also examined. Extreme shyness was strongly associated with the complex subtype of social phobia but not with the speaking-only subtype. The present study also determined that for those individuals with a past history of social phobia, extreme childhood shyness was a strong indicator of social phobia for both males and females. The magnitude of the association of extreme shyness with social phobia was considerably higher for females than males when

additive variables such as peer relations and maternal warmth are taken into account. It is important to note however, that while many individuals report extreme childhood shyness, not all develop social phobia. Therefore, more work is required to clearly determine risk factors. The implications of this research are discussed briefly.

Acknowledgements

The author gratefully acknowledges the assistance of a number of individuals without whose contribution this project would not have been possible.

My research supervisor, Dr. Brian J. Cox, has been invaluable in many respects. Dr. Cox's assistance in formulating the ideas behind this study and his willingness to provide frequent and prompt feedback were greatly appreciated.

My committee members, Dr. David Martin, my academic advisor, and Dr. Murray Enns, my external committee member, also contributed suggestions that resulted in a much-improved thesis.

I would also like to recognize the contributions of "Data Jedi" Ian Clara who provided assistance with the analyses using the Sudaan program.

Finally, I would like to recognize the assistance of my friend and partner, Lachlan McWilliams. Lachlan lovingly and unfailingly provided encouragement and support and my gratitude extends far beyond what I can express here.

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Shy Kids, Phobic Adults? Psychiatric Correlates of Retrospectively Recalled Childhood Shyness in a Nationally Representative Sample

Social phobia is a clinical disorder that has been 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" (American Psychiatric Association, 1987, p. 241). While quite prevalent, social phobia is one of the least understood anxiety disorders. Little is known about its aetiology, but it is thought that shyness may be a developmental precursor of social phobia (Kagan, Snidman, & Arcus, 1992).

This paper presents a research study that investigated the relationship between characteristics of adults who provide retrospective reports of extreme childhood shyness and the development of social phobia in adults using data collected from the National Comorbidity Survey (NCS: Kessler, McGonagle, Zhao, Nelson, Hughes, Eshleman, et al., 1994). As well, variables that have been implicated in the development of psychopathology (i.e. peer relations and parental relations) were also investigated in conjunction with extreme shyness as a risk factor for social phobia.

The NCS is a large survey of the US non-institutionalized general population designed to study the distribution and correlates of DSM-III-R (American Psychiatric Association, 1987) psychiatric disorders. The NCS utilized the World Health Organization's Composite International Diagnostic Interview (CIDI 1.0; Robins, Wing, Wittchen, & Helzer, 1988; World Health Organization, 1990) to carefully diagnose psychopathology within the survey sample. For the purpose of the present study, the NCS dataset provides information for investigating the patterns of comorbidity, order of onset, age of onset, and delineation of the subtypes of social phobia (complex, or generalized, social phobia vs. speaking-only, or non-generalized, social phobia) as they relate to

shyness. While shyness has been investigated in the past using highly select samples, the NCS provides an opportunity to investigate elevated levels of shyness as it relates to different mental disorders in a sample representative of the general population – something that, to this point in time, had not yet been done.

This study covers several topics that laid the groundwork for this investigation of extreme shyness and its distinct association to psychopathology (i.e. social phobia) as well as the link between extreme shyness, risk factors such as peer as well as parental relations, and their connection to psychopathology; important domains that have never been simultaneously assessed in a nationally representative sample. First an overview of the key concepts and findings in the shyness literature is presented. Second, literature concerning the role that extreme shyness may have in the development of social phobia is reviewed. Third, the role of peer as well as parental relations will be reviewed with regard to their links with psychopathology. Fourth, the plausibility of extreme shyness as a broad diathesis will be examined. Fifth, the rationale and methodology for this study, designed to investigate the relationships between extreme shyness, social phobia and other psychopathologies are presented. Lastly, the results, implications and limitations of the research are also discussed.

Shyness: Concepts and Findings

Shyness is not considered to be an emotional disorder, rather it is described as temperamental reservation (i.e. behavioural inhibition). A number of definitions have been put forth in an attempt to delineate the elusive concept of shyness. Pilkonis (1977) defines shyness as "a tendency to avoid social interactions and to fail to participate appropriately in social situations" (p. 596). Pilkonis and Zimbardo (1979) in a more detailed definition, describe shyness as "a tendency to avoid social situations, to fail to

participate appropriately in social encounters, and to feel anxious, distressed, and burdened during interpersonal interactions" (p.134). Pilkonis and Zimbardo (1979) further emphasize that shyness includes cognitive, affective, physiological and behavioural components that are elicited by different types of people and various social situations.

Buss (1980) provides a more specific and circumscribed definition of shyness in terms of the individual's reaction to being with strangers or casual acquaintances: tension, coercion, feelings of awkwardness and discomfort, and both gaze aversion and inhibition or normally expected social behavior. Zimbardo (1982) defines shyness as "a heightened state of individuation characterized by excessive egocentric preoccupation and overconcern with social evaluation...with the consequence that the shy person inhibits, withdraws, avoids, and escapes" (pp.467-468). Jones, Briggs, and Smith (1986) define shyness as "discomfort and inhibition in the presence of others" (p. 629). They go on to say that "shyness concerns the discomfort and inhibition that derives directly from the interpersonal nature of the situation rather than from other sources of threat and discomfort which are not essentially interpersonal even though they may occur in the presence of others (e.g. threats of harm or physical ailments)" (p. 629). Kagan (1989) asserts that shyness may be viewed as an aspect of behavioural inhibition (i.e. initial withdrawal to unfamiliar or challenging events). Similarly, Rubin and Asendorpf (1993) characterize shyness as social withdrawal motivated by social evaluative concerns, particularly in novel situations. As well Beidel and Turner (1998) acknowledge "the term shy is used by professionals and laypersons alike to describe those persons who are socially reticent" (p.7), however, Beidel and Turner further contend shy individuals can engage socially both interactionally and at the performance level when necessary. Henderson (1992) purports that chronic shyness is a fear of negative evaluation sufficient

to inhibit participation in desired activities and that it significantly interferes with an individual's pursuit of personal or professional goals.

While there are numerous definitions of shyness, this being only a sample of what appears in the literature, the fundamental element to each definition is discomfort and the motivation to escape situations that contribute to it. However, shyness appears to be more complicated than simply being encompassed by a dislike of social situations accompanied by discomfort. Buss (1986) sets forth a theory that shyness can be delineated into two different traits: fearful shyness and self-conscious shyness. Fearful shyness, also referred to as stranger anxiety, usually begins between the age of 7 and 12 months of life, but may begin later. It involves wariness, retreat and the seeking of comfort when confronted by unfamiliar people, usually adults. More severe reactions consist of behaviours that characterize fear, such as crying and shrinking away. For most children the trait of fearful shyness tends to diminish as children mature. However for some, fearful shyness endures and with it comes reactions typical of adult shyness such as behavioural interactions and inhibition of speech. Fearful shyness is considered to be a social anxiety as it involves feelings of fright and upset when faced with social interactions and being with others. Buss purports the beginnings of fearful shyness to occur through intense and frequent classical conditioning of fear during childhood (i.e. being bullied, threatened or rejected when in the presence of caretakers other than parents; being the target of aggression by older children, adolescents and adults).

Self-conscious shyness refers to an individual's sense of self as a social object. If the self-awareness is acute, then the individual feels exposed to the intense scrutiny of others and the outcome is often embarrassment (Buss, 1986). Unlike fearful shyness, Buss contends self-conscious shyness is present only in older children and adults as the tendency to focus on oneself, as a social object requires socialization training and

cognitive ability not present in infants. Children around the fifth year of life begin to see themselves as social objects as a result of social training and developing cognitions. Once sense of self develops, individuals are susceptible to embarrassment and self-conscious shyness. The origins of self-conscious shyness are reported to be linked to excessive socialization training and the importance of the social self, (i.e. the importance of proper appearance and manners to the point of admonishment) (Buss, 1986). This differs from fearful shyness in that the child is made to feel conspicuous, awkward, foolish, and/or vulnerable rather than frightened.

Zimbardo (1977) administered the Stanford Shyness Survey to approximately 5000 individuals. His findings indicated over 80% of the respondents reported experiencing shyness at some point in their life. Interestingly, approximately 7% of the respondents reported never having experienced feelings of shyness. Of those individuals who labelled themselves as shy, three quarters acknowledged they did not like being shy, and two thirds considered it to be problematic (Henderson and Zimbardo, 2001). In a study conducted by Caspi, Elder and Bem (1988) using archival data from 1954, it was determined that 32% of girls and 28% of boys were said to be shy by parents in a sample of 8- to 10-year olds. Lazarus (1982) found upon investigating shyness in elementary-school age children that 38% of a sample of fifth graders reported being shy. Further, estimates of self-reported shyness have risen from 40 to 50 percent over the past 20 years (Carducci & Zimbardo, 1995). These figures indicate that shyness is experienced at some point by nearly everyone.

Shyness appears to be considered by the layperson as a common, transitory and harmless condition. Many individuals do "outgrow" shyness over time, as indicated in a retrospective study of college students who demonstrated extreme scores on a shyness battery (Bruch, Giordano, and Pearl, 1986). Almost half of the 'currently not shy' group

reported feeling shy during their childhood. Individuals who experience feelings of shyness and the behaviours associated with them consistently across time are reported to have "temperamental shyness" (Turner, Beidel & Townsley, 1990) which consists of both the desire to interact with other individuals and feelings of anxiety about doing so. Although shyness is considered, for the most part, to be transitory and relatively common, it is not without consequences. The impact of shyness for those who suffer from it is that it impairs daily functioning. Shy children, particularly those suffering from persistent shyness are often lonely and have low self-esteem (Crozier, 1995; Fordham & Stevenson-Hinde, 2000). Lazarus (1982) reported that 46 percent of fifth graders who were shy indicated that their shyness was problematic. Zimbardo (1977) found that 63 percent of shy college students stated their shyness was problematic in that they reported having difficulty making friends, experienced feelings of loneliness and depression, had difficulty with asserting themselves, and struggled with preoccupation when faced with social encounters. Shy individuals often experience increased cardiac responses during social performance situations as well as holding fears of being negatively evaluated (Beidel & Turner, 1999). Further, shy individuals tend to avoid social situations and may have social skills deficits (Beidel & Turner, 1999).

Long-term effects of shyness are evidenced by two prospective long-term studies (Caspi et al., 1988; Kerr, Lambert & Bem, 1996) identifying adult outcomes of childhood shyness, although the outcomes appear to be influenced by gender. These studies determined that shy males married later and became fathers at a later age than their non-shy peers. Interestingly, in a comparison of Swedish to American adult outcomes of childhood shyness (Kerr et al., 1996), American males who were shy as children were significantly later establishing stable career paths than were nonshy American males. This was not the case for Swedish males. Both American and Swedish females, who were shy

as children, demonstrated lower levels of academic achievement than did their non-shy counterparts. Females did not differentiate from their non-shy peers with regard to either marriage or motherhood. Further, compared with their non-shy peers, significantly more American females who were shy as children either had no work history or ended their employment upon marrying or entering motherhood. While there have been several investigations of the outcomes of shyness, as of yet, there has been no nationally representative survey of shyness and its psychiatric correlates.

Social Phobia and Shyness

"Social phobia is characterized by persistent, unreasonably strong, frequently overwhelming fears of social and performance situations where individuals are fearful of being scrutinized by other people and being subject to negative evaluation" (Wittchen, 2000, p. S7). On the basis of available epidemiological data, social phobia is one of the most common anxiety disorders affecting adults (Albano, Chorpita, & Barlow, 1996; Beidel and Turner, 1998; Kessler et al., 1994). Kessler et al. report that the lifetime prevalence of social phobia is 13.3 percent. People with social phobia suffer significant emotional distress, social isolation and occupational maladjustment, depression and increased suicidal ideation. It is considered to be an early onset disorder, appearing most often in mid-adolescence and is chronic and unremitting.

Two different patterns of social phobia exist: one characterized by a pervasive pattern, known as generalized, and one characterized by a relatively circumscribed pattern of fear and avoidance, known as specific (Heimberg, Hope, Dodge, & Becker, 1990; Kessler, Stein, & Berglund, 1998). Generalized social phobia is characterized by anxiety in a number of different social situations, in which fears pertain to situations wherein the individual may be scrutinized by others, and often resulting in avoidance of social

situations altogether. Of patients seeking treatment for social phobia, approximately 70% meet the criteria for generalized social phobia (Turner, Beidel & Cooley, 1994, cited in Beidel & Turner, 1998). Circumscribed social phobia, also called specific social phobia, or non-generalized social phobia, is characterized by a more limited pattern of fear that usually reveals itself in one situation (e.g., public speaking). While, circumscribed social phobia occurs in a limited fashion, it may still be severe.

The National Comorbidity Survey provided epidemiological data regarding social phobia and its subtypes (Kessler et al., 1998). It was determined that approximately one-third of individuals with social phobia had a fear of public speaking (speaking-only social phobia) while the remaining two-thirds had a fear of one or more other (i.e. non-speaking) social situations (complex social phobia) (Kessler et al., 1998). Individuals in the complex social phobia subtype often also had fears of speaking in public, however it was not a necessary criterion for this category. Thus individuals with social phobia were classified into two subgroups: complex social phobia and speaking-only social phobia. Speaking-only social phobia is characterized by a fear of public speaking while complex social phobia is distinguished by fear of multiple social situations. The speaking-only subtype of social phobia most closely resembles the non-generalized categorization of social phobia in the DSM-IV, while the complex social phobia subtype resembles the generalized social phobia subtype (Kessler et al, 1998; Stein & Chavira, 1998).

The complex (generalized) subtype of social phobia is the most common type, amongst individuals seeking treatment for social phobia (approximately 70%; Scholing & Emmelkamp, 1993; Turner, Beidel & Jacob, 1994). Several investigative writings have indicated that complex (generalized) social phobia is characterized by more severe anxiety (including accompanying somatic symptoms such as heart palpitations, sweating, dry mouth, and tension in muscles), social inhibition, fear of negative evaluation,

fearfulness, self-consciousness, avoidance, self-deprecating cognitions, and depression than the circumscribed subtype (Albano et al., 1996; Bruch, 1989; Heimberg et al., 1990; Turner, Beidel, & Townsley, 1992). In addition, individuals with complex (generalized) social phobia were more likely to have comorbid Axis I and Axis II diagnoses (Herbert, Hope, & Bellack, 1992).

Kessler et al. (1998) report that there is no difference between the two subtypes of social phobia, complex (generalized) and speaking-only (non-generalized), with regard to age of onset. However, the complex (generalized) form of social phobia is a more severe form of social phobia and is longer lasting than the speaking-only, or non-generalized, subtype. The speaking-only subtype has a recovery rate of approximately 90% about 30 years after onset while the complex form reached a recovery rate of only 50-55% after approximately 40 years (Kessler et al., 1998). Consistent with research using clinical samples, Kessler et al., (1998) report higher rates of comorbidity amongst individuals with complex social phobia than in individuals with speaking-only social phobia. This is particularly true for mood and other anxiety disorders.

Like shyness, social phobia also has long-term consequences. An epidemiological study has indicated that two-thirds of individuals with social phobia are single or divorced. Further, half have not completed high school and as many as one-fifth are receiving government assistance due to inability to work (Schneier, Johnson, Hornig, Liebowitz and Weissman, 1992).

Although there has been increasing interest in the area of social phobia and its aetiology, the role that shyness plays in the development of social phobia remains unclear. Shyness in young children has been implicated in later psychopathology. Rubin and Mills (1988) reported that second graders who were shy and passively isolated and had lower perceived social competence reported high levels of depression and loneliness

when they were in the fifth grade. Similarly, lower perceptions of social competence, poor peer acceptance, and social isolation in second grade predicted anxiety and depression in fifth grade as determined by Hymel, Rubin, Rowden, and LeMare (1990). Further, Beidel and Turner's (1998) book entitled *Shy Children, Phobic Adults: Nature and Treatment of Social Phobia* posited a strong relationship between childhood shyness and social phobia. Along this vein, several studies suggest that temperamental style in childhood, characterized by shyness, inhibition and avoidance, may serve as a risk factor for the development of social phobia (Stemberger, Turner, Beidel & Calhoun, 1995; Turner et al., 1990). Although the ratio is acknowledged to not be 1:1, the actual strength of the association between childhood shyness and social phobia in the general population has not yet been determined.

Shyness closely parallels social phobia in that they share the characteristic predecessor fear of negative evaluation (Bruch & Cheek, 1995). However, it is not assumed that shyness and social phobia are synonymous even though they share the cognitive and affective expressions of fear of negative evaluation. Social phobia may involve a more pervasive pattern of avoidance and impairment in social and occupational functioning than does shyness (Bruch, 1989).

Through a review of aspects of the relationship between shyness and social phobia, it was determined that similar features included negative cognitions during social encounters, increased physiologic arousal and a tendency for avoidance of social situations (Turner et al., 1990; Zimbardo, 1977). Social phobia was determined to be less common, more chronic, and more frequently associated with functional impairment than was shyness (Turner et al., 1990). Likewise, Bruch (1989) asserted that while shyness and social phobia share cognitive and affective manifestations of fear of negative evaluation, the two conditions are not deemed to be one and the same, because social phobia may

involve a more pervasive pattern of avoidance and impairment in social and occupational functioning than shyness.

Further evidence suggests that while shyness and social phobia are not identical, there may be some overlap. Interestingly, situations that present difficulty for individuals are also similar for both shyness and social phobia. Socially phobic individuals report that the most common upsetting event for them is an unstructured social encounter with peers (Beidel & Morris, 1995; Henderson, 1992; Zimbardo, 1977). Shyness has been thought to be a subclinical condition of social phobia (Turner et al., 1990), and studies have determined that adults with social phobia commonly report shyness in childhood (Stemberger et al., 1995; Zimbardo, 1977). Central elements of social phobia have been found to be present in individuals who are shy and that these similarities between social phobia and shyness are worthy of further investigation (Turner et al., 1990).

In an examination of the literature on shyness and social phobia across six different dimensions of functioning, it was determined that individuals who were described as shy or socially phobic had similar somatic symptoms and cognitions when in distressing settings (Turner et al., 1990). They differed, however, on social and occupational functioning, onset of the condition, course of the condition and overt behavioral characteristics with social phobics experiencing more severe outcomes than did shy individuals (Turner et al., 1990).

While there appears to be considerable overlap with the constructs of shyness and social phobia, the exact relationship between these two conditions has not been determined. It is evident that the two constructs are not one and the same due to the fact that social phobia is considerably different from shyness in terms of epidemiology, course, severity of symptoms, and clinical correlates once current diagnostic criteria are applied (Beidel & Turner, 1998).

In agreement with the notion of overlap, Marshall (1994) asserts shyness is a form of social anxiety with social phobia being a more extreme form. McNeil (2001) proposes a model that, in the general population, suggests that social anxieties and fears exist along a continuum. Shyness spans across normal to high normal to pathological levels of social anxiety with the assumption that there is overlap across a gradient (See Appendix A). This is consistent with the hypothesis of Beidel and Turner (1998) that shyness may be on a continuum and that individuals at the upper extreme meet the criteria for social phobia while those at the lower extreme do not. Also in agreement with this notion, Stein, Chavira and Lang (2001) deduce that "shyness is a trait that, at its extreme, becomes impairing and thereupon assumes the characteristics of a disorder, namely social phobia" (p. 664).

Bruch and Heimberg (1994) investigated differences in perceived parental childrearing attitudes and personal characteristics among generalized and non-generalized social phobic patients and non-clinical controls. With regard to developmental characteristics, compared with non-generalized social phobics, generalized social phobics reported that more people perceive them as shy, that they felt more self-conscious during adolescence, and that they dated fewer people during adolescent years. Further in this comparison, as adults, generalized social phobics also perceived themselves as more shy than their peers. Interestingly, while both social phobic groups experienced more symptoms of shyness during adolescence than did controls, the social phobia groups did not differ in their report of the age of onset of feelings of shyness. Bruch and Heimberg concluded from this "although generalized and non-generalized patients may not differ in the chronicity of feelings of shyness, they may differ in the scope and/or severity of shyness problems" (p. 166).

Peer Relations and Psychopathology

Peer relations and particularly close friendships represent a significant feature of interpersonal functioning among children and adolescents. Close friendships with peers play a vital role in social and emotional development of youth as well as serving to provide companionship, emotional support second only to that received from parents, intimacy and an avenue for expressing emotions and resolving conflicts (Berndt, 1982; LaGreca, 2001, Parker & Asher, 1993). While close friendships may protect children from feeling socially anxious, alternatively, it is argued that youth who lack close friendships may be more vulnerable to feelings of social anxiety (LaGreca, 2001). Further, it is contended that restricted peer interactions lead to impairments in social skills development and interpersonal relations (Vernberg, Abwender, Ewell, et al., 1992), which in turn allow for increased anxiety within the child resulting in diminished ability in social situations. Beidel and Morris (1995) further contend peer neglect may also be a factor in the manifestation of social phobia.

Parker and Asher (1993) assert the ability of children to form and maintain close friendships is representative of a critical social adaptation task. However, it has been purported that social anxiety impairs the ability of the child to establish and maintain friendships (Rubin, LaMare & Lollis, 1990). Blatt (1991) also notes the importance of interpersonal experiences as they relate to the formation of self-criticism. Self-criticism is a lower-order or more specific psychological individual difference variable that is characterized by feelings of worthlessness and guilt, and a sense that one has failed to live up to expectations and is thought to develop due to poor interpersonal experiences (Blatt, 1974, 1991). Therefore ensuing poor peer relationships can foster discomfort in social situations, which may have a negative effect on subsequent social interactions of children and youth; and problems with peer relations and friendships are believed to contribute to

the development of feelings of social anxiety in children and adolescents (LaGreca, 2001; Rubin et al., 1990).

LaGreca, Dandes, Wick, Shaw, & Stone (1988) conducted a study in which children reported the degree of social anxiety they were experiencing via the self-report measure Social Anxiety Scale for Children (LaGreca et al., 1988). Results indicated that peer-neglected children reported high levels of fear of negative evaluation relative to classmates, and socially rejected children reported both high levels of social evaluative anxiety and high levels of social avoidance and distress.

Social anxiety has been demonstrated to be related to adolescents' peer relations. In particular, peer exclusion and peer rejection have been linked with adolescents' social anxiety (LaGreca, 2001). In a study of the relation between sociometric nominations and social anxiety disorder in adolescents, Inderbitzen, Walters, and Bukowski (1997) established that adolescents who were neglected or rejected by peers reported significantly higher levels of social anxiety than those who were classified as average, popular or controversial (i.e. both liked and disliked). Similar to LaGreca et al. (1988) above, only rejected students had significantly greater social evaluative concerns, while neglected and rejected youths reported more generalized social avoidance and distress than the popular and controversial adolescents.

Along the same vein, LaGreca and Lopez (1988) conducted an investigation into the associations between adolescent reports of quantity, quality, and perceptions of competency in close friendships and adolescents' social anxiety. It was concluded that adolescents with higher levels of social anxiety reported having fewer close friendships compared with their less socially anxious peers. As well, those with higher levels of social anxiety reportedly perceived these close relationships as being less supportive and less intimate.

Many of the studies regarding peer relations have been conducted with participants from mainly Western populations. However, Hart, Yang, Nelson, Robinson, Olsen, Nelson, et al. (2000) examined cultural variations of withdrawn behaviour as well as the links between withdrawal and peer acceptance using participants from China, Russia, and the United States. It was ascertained that 'reticent' behaviours, i.e. watching children play or appearing unoccupied in a group setting, were demonstrated by children who were interested in social interaction but who found it difficult because of elevated levels of social anxiety and fearfulness. Evidence to support this categorization of withdrawn behaviours was found in each of the three cultural groups (Hart et al., 2000). Additionally, this reticent behaviour was associated with lower social preference in all three cultural groups (Hart et al., 2000) suggesting that social anxiety in peer relations is not culturally bound.

While much research, as cited above, has demonstrated the effects of poor peer relations, it has been argued that the presence of a stable friendship with another child can moderate the development of negative consequences resulting from problems with peers. A child experiencing difficulty(s) with peers is likely to benefit from having a stable friendship with a peer who is not experiencing similar troubles (Deater-Deckard, 2001). It has been reasoned that part of the protective effects of friendship may be rooted in self-efficacy, i.e. belief in the child's ability to form worthwhile enduring friendships with others (Fenzel, 2000).

In agreement with Fenzel (2000), Fordham and Stevenson-Hinde (1999) ascertained similar findings in their examination of associations between shyness, perceptions of friendship quality, and indices of adjustment related to internalizing problems in children 8 to 10 years of age. It was determined that shyness places a child at risk for adjustment problems but involvement in a good quality (high in positive features

of caring and validation) close friendship may serve to protect against such problems by providing experiences that validate self worth. Further, Fordham and Stevenson-Hinde reported that a good quality friendship becomes more strongly related to positive perceptions of classmate support, lower anxiety, and more favourable sense of global self worth. These findings imply that if shy children are able to make and maintain a quality friendship, it may serve as a buffer from the potential detrimental effects of shyness. Thus, it appears it is the successful peer relations that contribute positively to the development of social skills and feelings of personal competence - essentials for robust adolescent and adult functioning (Ingersoll, 1989).

Associations between poor peer relations and psychopathology have not gone unexplored. LaGreca (2001) reports social anxiety is one affective response that could result from poor peer relations such as negative, aversive, or exclusionary experiences with peers. In turn, feelings of social anxiety may inhibit positive social interactions that are necessary for satisfactory social/emotional development. Further, LaGreca (2001) asserts social anxiety may play a substantial role in the development of socially withdrawn and avoidant behavior, leading to missed opportunities for normal socialization experiences, as well as to further problems with peer relations.

Concordant with LaGreca, Deater-Deckard (2001) argues that problems in peer relationships contain a clearly established link with the development of psychopathology. It has been determined that patterns of play in early childhood are linked to behavioural adjustment in middle childhood (Howes & Phillipsen, 1998; Ladd & Burgess, 1999). An investigation, through retrospective reports, into the root of shyness in childhood explains that shy adults name unpleasant experiences with peers as contributing factors in the development of their shyness (Ishiyama, as cited in Ishiyama, 1984). Children who actively avoid interaction with peers, regardless of whether it is through active rejection

by peers, are most prone to developing internalizing disorders such as depression and anxiety (Rubin, Bukowski, & Parker, 1998). Peer rejection has been found to be a predictor of externalizing behaviours (i.e. drug use) in adulthood (Reinherz, Giaconia, Hauf, Wasserman, & Paradis, 2000) and peer rejection and the absence of close friendships has also been implicated in the aetiology of adult psychopathology (Bagwell, Newcomb & Bukowski, 1998). Alternatively, positive peer relations have been deemed to have a protective effect against the potentially detrimental effects of shyness and social anxiety by lowering feelings of anxiety and enhancing feelings of self-worth (Fordham and Stevenson-Hinde, 1999). While there is a great deal of literature in the area of peer relations and social anxiety as well as peer relations and psychopathology, there has not yet been an investigation into these relationships in the general population.

Parental Relations and Psychopathology

Previous research has indicated that parental behaviour affects the development of shyness in children. As early as 1939, it was demonstrated that lowered levels of parental acceptance tend to foster social anxiety and shy behaviour in children. Symonds (1939) reported that dominant parents who displayed restrictive behaviour, severe punishment, criticism, and overprotectiveness, or excessive planning for their child's needs, tended to have children who were shy, sensitive, self-conscious and timid. This concurs with Zimbardo and Radl (1981) who suggested that children who experience excessive discipline and/or judgement from their parents might learn to be anxious and shy around others. Further, parental non-acceptance has been reported to be strongly associated with withdrawn-neurotic behaviour (Barclay, 1975).

Eastburg and Johnson (1990) conducted a study examining the relationship between female college students' perceptions of their parents' behaviour and their own

reports of shyness. It was determined that there was a significant relationship between perceived maternal acceptance and self-reports of shyness. There was no significant relationship between paternal acceptance and shyness. This concurs with the literature concerning parent-child relations, which indicates children are generally more influenced by their same sex parent (see Block, Von Der Lippe, & Block, 1973).

Buss (1980) proposed that sensitivity to social evaluation may be fostered by parent-child rearing practices that emphasize the isolation of the child, the importance of others' opinions regarding appropriate behavior and deemphasis of family sociability. It is plausible that parental concern with others' opinions could sensitize a child to situations that involve public scrutiny, and isolation may prevent the child from engaging in activities that could diminish anxiety and social fears (Bruch, Heimberg, Berger & Collins, 1989). Further it has been argued that one source of social evaluative concern is parents' reprimands to their children about how others are examining them and, thus, the importance of proper appearance and mannerisms (Buss, 1986). After several of these scoldings, the child may come to anticipate evaluative threat in most social situations (Bruch et al. 1989).

Engfer (1993) conducted a six-year longitudinal study, which assessed maternal responsiveness to infant communication and maternal personality characteristics relative to childhood shyness. It was determined that maternal responsiveness during the first 2.5 years was inversely correlated with shyness ratings at age 6.3 years for girls but not for boys. Engfer concluded that boys' shyness was relatively independent of maternal influence, while girls' shyness appeared to be closely linked to maternal characteristics. Interestingly, it has been observed that parents of shy children seem to place excessive importance on social decorum, such as proper grooming, dress, and manners (Buss, 1980, 1986; Bruch, 1989). This type of guidance on the part of the parent may generate an

unwarranted self-consciousness and an exaggerated belief in the scrutiny and critical evaluation of others, resulting in a generalized fear of negative evaluation on the part of the child (Cloitre & Shear, 1995).

Atypical parenting characteristics have also frequently been theorized as antecedents to psychopathology, and in particular to phobic disorders (Arrindell, Emmelkamp, Monsma, and Brilman, 1983; Bowlby, 1973). Bowlby (1973) suggested that insufficient parental affection might promote "anxious attachment" the expression of which he saw common to some phobic disorders. Phobic individuals have been deemed to be extremely dependent and parental behaviour characterized by overprotective involvement and lack of care has been suspected as playing a role in the aetiology of a phobic disorder in children (Arrindell et al., 1983).

Enns, Cox and Clara (2002) examined parenting dimensions and adult psychopathology in a non-clinical nationally representative sample (the US National Comorbidity Survey). Findings from this investigation determined that parenting experiences were associated with 13 common mental disorders in adulthood, including anxiety/phobic disorders. Lack of care was the parenting dimension that was most consistently linked with psychopathology in adults. As well, parental relations with one's mother were more consistently related to adult psychopathology than parental relations with one's father. Parker (1979) suggested childhood exposure to parental behaviour characteristic of over-protectiveness and low levels of care or warmth results in impeded development of satisfying parent-child bonds. Consequently, this may result in the child experiencing difficulty and anxiety in interpersonal and social situations. Parker further asserts, "parental overprotection, by restricting the usual development process of independence, autonomy and social competence, might further promote any diathesis to a social phobia" (p.559).

An examination of the perceptions of parental control and care among social phobics and agoraphobics (Parker, 1979) using the Parental Bonding Instrument (Parker, Tupling and Brown, 1979), illustrated that social phobia patients differed from agoraphobic patients and non-clinical controls in perceptions of parental behaviour. Socially phobic patients scored each of their parents low on perceived care and high on perceived overprotection, with father scoring lower than mother on both dimensions. Agoraphobic patients differed from normal controls only in that they reported less maternal care.

Similarly, a study conducted by Arrindell and colleagues (1983) assessed whether social phobics differed from agoraphobics, simple phobics (height), and non-clinical controls on attitudes of child-rearing affection and control. Arrindell at al. found that compared with non-clinical controls, social phobics rated their parents as being low in caring and as being over-protective, as did simple phobics. Findings indicated agoraphobics differed from controls in that they rated both parents as lacking warmth and they did not differ from controls in terms of protectiveness. It was further asserted that certain parental rearing practices may be more typical of one type of phobic disorder than another (Arrindell et al., 1983).

Arrindell, Kwee, Methorst, Ven Der Ende and Moritiz (1989) investigated perceived parental rearing practices of non-clinical controls, agoraphobics and social phobics. Their findings determined that agoraphobic inpatients rated their parents as having less warmth in comparison with non-clinical controls. Further, socially phobic in-patients rated both their parents as having lower levels of warmth than agoraphobic in-patients as well as having been overprotective.

In the first reported study to evaluate the relationship between patient reports of specific parental child-rearing attitudes that may foster social evaluative concerns and

social phobia, Bruch et al., (1989) determined that social phobics perceived their parents as having isolated them more from routine social experiences, having been more concerned with the opinions of others, and not fostering family sociability. These findings on isolation substantiate Parker et al.'s (1979) conclusion that perceived maternal overprotection was associated more strongly with a diagnosis of social phobia than agoraphobia. As well, Enns et al.'s (2002) findings from the examination of parenting dimensions and adult psychopathology are concordant with these previous studies based on clinical samples; therefore extending these findings to the general non-clinical population. Bruch et al. further reported that individuals who were diagnosed as social phobic recalled greater difficulties as adolescents than agoraphobics in situations involving public scrutiny during junior high school and having fewer dating partners.

Bruch and Heimberg (1994) conducted a study in which perceptions of parent's childrearing attitudes were compared among generalized social phobics, non-generalized social phobics and non-clinical controls. It was determined that individuals with generalized social phobia perceived their parents as having isolated them more from others and being less sociable as a family unit than did non-generalized social phobia patients. The two social phobia groups did not differ in perceptions of their parents' child-rearing attitudes involving the importance of others' opinions and the use of shame as a form of discipline. Both patient groups differed, however, from non-clinical controls on these perceived parental child-rearing attitudes, with control subjects reporting significantly less emphasis on both characteristics importance of others' opinions and the use of shame.

Is Shyness a Specific or Non-specific Diathesis?

While the theoretical writings reviewed above suggest that shyness is associated with social anxiety and may serve as a risk factor for social phobia, the question remains: is shyness specific to social phobia? Depression is viewed as an interpersonal phenomenon (Joiner, 1997). Thus individuals lacking in interpersonal relations or those for whom interpersonal inhibition is a stable characteristic, may be at risk for depression. Shyness or interpersonal inhibition may serve as a vulnerability to depression in that the individual would be subject to a lack of social support. This in turn would serve to enhance feelings of anxiety and lowered self-worth. Lewinsohn (1974) asserts that limited social skills such as those experienced by shy individuals, serves as a vulnerability to depression in that such deficits limit friendship and positive social support. Joiner (1997) investigated the role of shyness as a vulnerability factor for depression. His findings indicated that shyness is a vulnerability factor for depressive symptoms among individuals lacking social support. In an investigation of childhood adversities and adult psychopathologies, Kessler, Davis and Kendler (1997) found that childhood adversities were associated with a broad range of psychopathology and showed little specificity. Extreme shyness could be considered a vulnerability factor that may act like other vulnerability factors and could increase one's risk for all types disorders. Therefore it is plausible that extreme shyness may be a vulnerability factor for various forms of adult psychopathology, not just social phobia. Thus, investigation into the possibility that extreme shyness may be a broad diathesis is warranted.

The theoretical writings and research reviewed above suggest that extreme shyness in children may serve as a vulnerability factor for the development of social phobia in adults. More specifically, extreme childhood shyness may serve as a risk for developing social phobia in adulthood because in comparison to non-shy individuals

those with a history of extreme childhood shyness have more distress in social situations and tend to avoid social interactions. However, prevalence studies demonstrate that not all individuals who are shy as children develop social phobia as an adult. The primary objective of the present study was to examine the relationship between retrospective reports of extreme childhood shyness and social phobia in adults. It was hypothesized that extreme childhood shyness would be positively associated with social phobia in adults. Further, it was hypothesized that extreme childhood shyness would be more strongly associated with the complex (generalized) subtype of social phobia. The possibility that extreme childhood shyness is a diathesis for psychopathology other than social phobia was also investigated and it was hypothesized that extreme childhood shyness would serve as a broad diathesis for depression, other anxiety related disorders, and substance use disorders (i.e. alcohol). Since it has been previously determined that maternal warmth is the parental variable most consistently associated with adult psychopathology (Enns et al., 2002), it was also hypothesized that poor parental relations (specifically low maternal warmth) and poor peer relations will be positively associated with social phobia. More importantly, the possibility that these relational variables may have additive effects (i.e. shyness in conjunction with other peer relations or extreme childhood shyness in conjunction with other peer relations and parental relations) in the risk for social phobia was also investigated. The key features of the present study are described below.

The National Comorbidity Survey (NCS), a non-clinical nationally representative sample, was used. The NCS provides a unique opportunity to address several of the limitations in the existing literature. Participants were selected from the National Comorbidity Survey (NCS) Part II public-use dataset (n = 5,877) (Kessler et al., 1994). The NCS was a nationwide household survey of the U.S. population designed to produce data on the prevalence and correlates of DSM-III-R (American Psychiatric Association,

1987) psychiatric disorders. The NCS utilized the World Health Organization's Composite International Diagnostic Interview (CIDI 1.0; Robins et al., 1988; World Health Organization, 1990). The CIDI is a reliable and valid diagnostic interview designed for use by trained interviewers who are not clinicians.

Part I of the NCS involved face-to-face, in-home interviews with 8,098 respondents who were administered the CIDI, along with sociodemographic questions and a brief risk factor inventory. Part II of the study involved a much more detailed risk factor battery given to a subsample of 5,877 respondents (approximately 99% response rate from Part I). This included all those in the age range 15-24, all others who screened positive for any lifetime diagnosis in Part I, and a random subsample of other respondents. Unlike the earlier Epidemiological Catchment Area Study (Robins, Helzer, Weissman, Orvaschel, Gruenberg, Burke, et al., 1984), the NCS included a much more comprehensive risk factor battery.

The entire NCS Part I and Part II database, interviews/questionnaires, and diagnostic codebook are now in public use format along with the appropriate sampling weight information for Part I and Part II data which are employed to make data representative of the general population. Given the importance of risk and developmental factors in the study of psychopathology, the NCS presents a rare research opportunity to examine important cutting-edge questions in a large, nationally representative sample.

The primary objective of the present study was to examine the relationship between extreme shyness in children and social phobia in adults. The theoretical writings regarding shyness and social phobia do not specifically discuss the nature of the relationship between the shyness variable and the development of social phobia other than to say that it lies on a continuum. However, not all shy individuals go on to develop social phobia. It was hypothesized that peer relations would be strongly associated with the

development of social phobia (i.e. those individuals with negative or poor peer relations would be more likely to develop social phobia) and that parental relations would be strongly associated with the development of social phobia (i.e. those individuals with low maternal warmth would have a greater propensity toward the development of social phobia). These hypotheses were based on the findings of Bruch et al., (1989), Deater-Deckard (2001) and LaGreca (2001) noted above.

Finally, much of the theoretical writings suggest that shyness is a risk factor for social phobia. However, it may be possible that extreme childhood shyness may be a broad diathesis for a number of psychiatric disorders. Thus, the present study also examined the relationship between retrospective reports of extreme childhood shyness and lifetime history of depression to determine whether shyness is a risk factor for anxiety disorders alone. It was hypothesized that extreme shyness is a broad diathesis for a variety of psychiatric disorders and not just for social phobia. As mentioned above, social phobia consists of two distinct subtypes, complex (generalized) social phobia and speaking-only (non-generalized) social phobia (Kessler et al., 1998; Stein & Chavira, 1998). Individuals with complex (generalized) social phobia have a higher prevalence of comorbid conditions than those with speaking-only social phobia (Kessler et al., 1998). Therefore, it was hypothesized that if extreme shyness proved to be a diathesis for social phobia, it was likely that it would also prove to be a diathesis for other psychopathologies as well, given the propensity for comorbidity among the complex (generalized) social phobia subtype.

Method

Participants and Procedure

Participants were selected from the National Comorbidity Survey (NCS) Part II public-use dataset (n = 5,877; 2,939 females and 2,938 males) (Kessler et al., 1994). The NCS was a nationwide household survey of the U.S. population designed to produce data on the prevalence and correlates of DSM-III-R (American Psychiatric Association, 1987) psychiatric disorders. Respondents were selected from a nationally representative, stratified, multistage area probability sampling frame of the non-institutionalized civilian population between the ages of 15 and 54. The response rate was 82.4%. The NCS obtained informed verbal consent from all participants 18 of age or over before beginning the interviews, and for those under 18 years of age informed verbal consent was obtained from parents.

Measures and Procedures

Psychiatric Diagnoses. Psychiatric diagnoses were made using the CIDI (World Health Organization, 1990). The CIDI is a structured interview based on DSM-III-R criteria designed for use by trained non-clinician interviewers. The CIDI field trials indicated the CIDI has good reliability (Wittchen, 1994). In the present study, life-time history of social phobia was assessed by asking the respondents whether there was ever a time when any of six situations always made them so afraid that they either tried to avoid it or felt very uncomfortable in the situation The six situations were speaking in public, having to use the toilet when away from home, eating or drinking in public, talking to people when you might have nothing to say or might sound foolish, writing while someone watches, and talking in front of a small group of people (see Appendix B). Respondents who endorsed one or more of these situational descriptors were asked the remaining social phobia questions from the Composite International Diagnostic

Interview. The National Comorbidity Survey clinical reappraisal study (Wittchen, Zhao, Abelson, Abelson, & Kessler, 1996) demonstrated acceptable agreement (kappa=0.68, standard error = 0.09) between DSM-III-R diagnoses based on these structured questions and diagnoses based on blind clinical reinterviews using the Structured Clinical Interview for DSM-III-R.

Shyness. For the purposes of the present study, shyness was assessed using a single item question in which the respondent is asked to give a retrospective report of the level of childhood shyness s/he experienced using a response scale ranging from "very shy" to "not at all shy" (see Appendix C).

Peer Relations. The NCS used five items to assess peer relations assessing popularity, quantity of friends, ability to count on friends, ability to confide in friends, and sensitivity. For the purposes of the present study each of the peer relations items were used (see Appendix D).

Parental Relations. The Parental Bonding Instrument (PBI; Parker, Tupling and Brown, 1977) is a self-administered 25-item questionnaire measuring the two principle dimensions of parental behaviours and attitudes: care/warmth and overprotection. The PBI was also developed to allow any parental contribution to subsequent psychiatric disorder to be quantified (Parker, 1989).

The NCS used an abbreviated eight-item version of the PBI for both mother and father, designed to capture the three separate dimensions of parental behaviour for each parent: care, overprotection, and consistency in parenting (Mickelson, Kessler, & Shaver, 1997). Cox, Enns, and Clara (2000) have found this brief measure of perceived parental behaviour to have strong psychometric properties. Items tapping the caring and protection dimensions have been demonstrated to be related to adult psychopathology (Arrindell et al., 1983; Enns, Cox, & Clara, 2002; Parker, 1979). For the purpose of the present study,

maternal warmth was the only parenting dimension of interest and it was assessed using three items to which the respondents were asked to provide a retrospective report of parental behaviours using a response scale ranging from "a lot" to "not at all" (see Appendix E).

While the shyness, peer relations variables, and parental relations variables in the NCS are conceptualized as a continuous variables, epidemiological research regarding risk factors for disorders typically selects categorical variables (i.e., presence or absence of a potential risk factor) and attempts to identify variables that place an individual at high risk for the disorder of interest. Kraemer, Stice, Kazdin, Offord and Kupfer (2001) state "in the risk research context, to establish temporal precedence and to evaluate potency in a way that most clearly establishes clinical and policy significance ... dichotomization seems necessary" (p. 854).

In order to examine the variables of shyness and peer relations in a manner consistent with this approach, analyses were conducted using a dichotomous variable reflecting the extreme response to items pertaining to these variables (e.g. respondents indicating a retrospective report of childhood shyness at a "very shy" level on the shyness variable will be defined as "high risk"). In order to examine maternal warmth in a manner consistent with this approach, analyses were conducted using dichotomous variables reflecting lack of maternal warmth. Scores above 1 standard deviation were defined as elevated or "high risk".

Results

Statistical analyses were conducted using the LOGISTIC regression analysis program in SUDAAN Software for the Statistical Analysis of Correlated Data (Shah, Barnwell, & Bieler, 1997) to calculate odds ratios and Wald F-values. The odds ratios

were obtained from logistic regressions where the odds ratio represents an exponentiated logit. As a result of the complex sample design and weighting of the NCS, the SUDAAN software is required to re-estimate the standard errors, which is done using the Taylor series linearization method and the stratification information available in the NCS part II public use dataset. All data were also weighted using the appropriate statistical weight available in the NCS public use dataset. Application of this weight makes the data representative of the general U.S. population on a variety of indicators from U.S. census data.

Analyses were conducted separately by gender and utilized seven independent, or risk, variables. These risk variables include extreme childhood shyness, five childhood peer relations risk variables: not being popular while growing up, having no friends while growing up, could not count on friends when things went wrong, could not open up to friends about problems, having feelings very easily hurt by things that other children said or did, and one parental relations risk variable: low maternal warmth while growing up. The main dependent variables were complex (generalized) social phobia and speaking-only (non-generalized) social phobia. The other common psychiatric disorders included in the NCS (i.e., depression, mania, dysthymia, panic disorder, agoraphobia, simple phobia, generalized anxiety disorder, alcohol abuse, alcohol dependence, drug abuse, drug dependence, conduct disorder, and adult antisocial behaviour) were also used as dependent variables.

Bivariate Analyses

In the first series of analyses, separate bivariate logistic regressions were used to evaluate the strength of association between the risk variable of extreme childhood shyness and the presence versus absence of each of the diagnostic variables among NCS

Part II respondents. The findings of these analyses are reported in Table 1. Extreme childhood shyness was found to have a significant statistical association with social phobia for both males and females. As well, extreme childhood shyness was shown to have significant statistical association with all of the other anxiety disorders except panic disorder (trend toward significance at p=.08) and generalized anxiety disorder (trend toward significance with p=.10) for males and panic disorder for females. Further, extreme shyness was found to have significant statistical association with both major depression and dysthymia for males and major depression for females (and a trend to ward significance with p=.067 for dysthymia). Extreme shyness was not found to have any significant statistical association with the substance or other disorders for either males or females. These findings demonstrate the relative predictive validity of extreme shyness for social phobia as well as other anxiety and mood disorders, and suggests it is a good candidate variable to evaluate in a model along with the other childhood risk factors.

A similar series of separate bivariate logistic regressions were used to evaluate the strength of association between each of the remaining six risk variables and the presence versus absence of each of the diagnostic variables among NCS Part II respondents. The findings of these analyses are also reported in Table 1. Of the remaining five peer relations risk factors, three ("not at all popular", "could not count on friends", and "feelings very easily hurt") were found to have significant statistical association with social phobia for both males and females while one risk factor ("could not open up to friends") was found to have a significant statistical association with social phobia for males only. With regard to the parental relations risk variable, "low maternal warmth" was found to have a significant statistical association with social phobia for females, but not for males. Further, "low maternal warmth" was also found to have significant

Table 1

Bivariate Associations (Odds Ratios) Between Childhood Peer Relations and NCS/DSM-III-R Disorders (N=5877; Males=2938; Females=2939)

	Anxiety Disorders						Mood Disorders		Substance Disorders				Other	
Variable	SocP	Agor	PTSD	PD	SimP	GAD	MD	Dys	AlcD	AlcA	DrugD	DrugA	CD	ASPD
Very shy														
Males	**2.72*** **	**1.92** **	**2.35** **	2.04 ns	**2.07*** **	1.62 ns	**2.09*** **	**2.24*** **	1.24 ns	1.19 ns	1.30 ns	1.02 ns	1.16 ns	.81 ns
Females	**2.94*** **	**1.40***	**1.79*** **	1.16 ns	**1.49** **	**1.44***	**1.55*** **	1.38 ns	.89 ns	.94 ns	1.37 ns	1.13 ns	1.33 ns	.58 ns
Not at all popular														
Males	**3.37*** **	1.84 ns	**3.09***	3.57 ns	**7.90*** **	1.90 ns	**4.45*** **	**5.70*** **	**3.63*** **	.51 ns	**2.38***	**.22 ***	**3.44** **	**3.99*** **
Females	**2.26** **	1.62 ns	**2.63** **	.99 ns	.91 ns	1.64 ns	**1.82***	**1.91***	1.01 ns	.89 ns	1.94 ns	.93 ns	1.71 ns	2.14 ns
No Friends														
Males	2.82 ns	.40 ns	5.12 ns	**.00** **	2.68 ns	.51 ns	2.53 ns	**11.13*** **	**6.13*** **	1.16 ns	3.15 ns	**.00*** **	**7.31*** **	3.84 ns
Females	2.92 ns	**3.83***	**8.17*** **	3.13 ns	.82 ns	2.04 ns	**2.64***	**5.09*** **	1.26 ns	.35 ns	2.06 ns	.18 ns	**5.72*** **	**9.03** **
Could not count on friends														
Males	**1.81** **	**1.97***	**3.74** **	**2.64***	1.46 ns	1.37 ns	**2.28** **	**3.33*** **	1.22 ns	.82 ns	1.43 ns	.88 ns	1.54 ns	**2.79** **
Females	**1.57***	1.80 ns	**3.26*** **	.93 ns	1.31 ns	**2.13** **	**1.82***	**2.86*** **	1.23 ns	1.06 ns	1.30 ns	1.46 ns	1.09 ns	**3.17** **
Could not open up to friends														
Males	**1.83** **	**2.20***	**2.71*** **	**2.57** **	**2.37*** **	1.23 ns	**1.98*** **	**2.18** **	**1.61***	.84 ns	**1.57***	**.60***	1.35 ns	**2.94*** **
Females	1.40 ns	**1.86** **	**4.04*** **	1.53 ns	1.27 ns	**2.18** **	**2.10** **	**2.44*** **	.91 ns	.83 ns	1.29 ns	1.09 ns	1.48 ns	.90 ns
Feelings very easily hurt														
Males	**2.79*** **	**3.01*** **	**4.27*** **	**3.68*** **	**3.96*** **	**4.52*** **	**3.18*** **	**4.71*** **	**1.86*** **	.98 ns	**1.80*** **	.72 ns	**1.57** **	**2.14*** **
Females	**2.69*** **	**1.99*** **	**2.78*** **	**2.33*** **	**1.82*** **	**2.45*** **	**2.28*** **	**1.86** **	**1.70*** **	**1.26***	**1.58** **	**1.81** **	**1.43** **	1.34 ns
Low Maternal Warmth														
Males	1.21 ns	**1.70***	**3.31*** **	1.44 ns	1.43 ns	**1.95** **	**2.55*** **	**2.81*** **	**1.68** **	.79 ns	**2.03*** **	1.34 ns	**2.21*** **	**2.31** **
Females	**1.77*** **	**1.84*** **	**3.56*** **	**2.59*** **	**1.82** **	**2.75*** **	**2.87*** **	**3.20*** **	**2.38*** **	1.10 ns	**2.55*** **	**2.10** **	**2.62*** **	**5.82*** **

SocP, social phobia; Agor, agoraphobia; PTSD, posttraumatic stress disorder; PD, panic disorder; SimP, simple phobia; GAD, generalized anxiety disorder; MD, major depression; Dys, dysthymia; AlcD, alcohol dependence; AlcA, alcohol abuse; DrugD, drug dependence, DrugA, drug abuse; CD, conduct disorder; ASPD, antisocial personality disorder.

***p<0.001; **p<0.01; *p<0.05

statistical associations with all other disorders except alcohol abuse. For males, "low maternal warmth" was found to have significant statistical associations with all other disorders except panic disorder, simple phobia, alcohol abuse, and drug dependence.

A similar series of separate bivariate logistic regressions were used to evaluate the strength of association between each of the seven risk variables and the presence versus absence of each of the social phobia subtypes (i.e. speaking only subtype and complex subtype) among NCS Part II respondents. The findings of these analyses are reported in Table 2. Extreme childhood shyness was found to have significant statistical association with the speaking only subtype of social phobia for females but not for males. Extreme childhood shyness was found, however, to have significant statistical association with the complex subtype of social phobia for both males and females. Further, of the five peer relations risk variables, only one ("no friends") demonstrated significant statistical association with the speaking only subtype of social phobia for males, interestingly, for reduced risk. Similarly, only one of the five peer relations risk variables ("feelings very easily hurt") demonstrated significant statistical association with the speaking only subtype of social phobia for females. The remaining peer relations risk variables did not prove to have any significant statistical association with the speaking only subtype of social phobia for males or females. Conversely, each of the five peer relations risk variables demonstrated significant statistical association with the complex subtype of social phobia for both males and females. "Low maternal warmth" was found to have a significant statistical association with the speaking only subtype of social phobia for males but not for females. "Low maternal warmth" was found, however, to have a significant statistical association to the complex subtype of social phobia for both males and females.

Table 2

Bivariate Associations (Odds Ratios) Between Childhood Peer Relations, Maternal Warmth, and Social Phobia Subtypes (N=5877; Males=2938; Females=2939)

	Social Phobia Subtypes			
	Speaking Only		Complex	
	Male	Female	Male	Female
Variables	Odds Ratio	Odds Ratio	Odds Ratio	Odds Ratio
Very shy	1.41 ns	1.75**	3.34***	3.46***
Not at all popular	.97 ns	1.45 ns	4.42***	2.52**
No friends	.00 ***	.36 ns	4.36*	4.67**
Could not count on friends	.60 ns	1.10 ns	2.46***	1.81**
Could not open up to friends	1.09 ns	.67 ns	2.10**	1.90**
Feelings very easily hurt	.94 ns	1.89***	3.89***	2.95***
Low maternal warmth	.43*	1.15 ns	1.62*	2.10***

***p<0.001; **p<0.01; *p<0.05

Exploratory Multivariate Analyses for Anxiety and Mood Disorders

Exploratory stepwise multivariate logistic regression analyses were conducted separately by gender using a split sample procedure whereby half of the NCS Part II respondents are randomly selected. These analyses were conducted for the purpose of determining whether extreme childhood shyness would predict social phobia and other anxiety and mood disorders when other potential predictors, such as childhood peer relations as demonstrated in Table 1, are included in the model. All of the childhood peer relations risk variables were entered simultaneously into the stepwise regression. The findings of these stepwise multivariate regression analyses for males are reported in Table 3. The findings of these analyses indicated that extreme childhood shyness in conjunction with other childhood risk variables demonstrated a significant statistical association with social phobia but not for the remaining NCS-DSM-III-R disorders. The final predictive model for social phobia consisted of extreme childhood shyness and two of the remaining childhood risk variables ("could not count on friends" and "feelings very easily hurt"). Dashed lines were used in Table 3 to indicate variables that were not included in the final models.

The same analytic procedures were conducted separately for females. All of the childhood risk variables except for the parental relations risk variable were entered simultaneously into the stepwise regression. The findings of these analyses, reported in Table 4, indicated that extreme childhood shyness in conjunction with other childhood risk variables demonstrated a significant statistical association with social phobia but not for the remaining NCS-DSM-III-R disorders. The final predictive model for social phobia consisted of extreme shyness and one of the remaining childhood risk variables ("feelings very easily hurt"). Dashed lines were used in Table 4 to indicate variables that were not included in the final models.

Table 3

Exploratory Multivariate Associations (Odds Ratios) Between Childhood Peer Relations and the NCS/DSM-III-R Anxiety and Mood Disorders for Males (N=1460)

	Anxiety Disorders						Mood Disorders	
Variable	SocP	Agor	PTSD	PD	SimP	GAD	MD	Dys
Very shy	**2.58*** **	---	---	---	---	---	---	---
Not at all popular	---	---	---	---	**2.86***	---	---	---
No Friends	---	---	**16.71****	---	---	---	---	**14.46***
Could not count on friends	**1.86***	---	---	---	---	---	---	**3.06*** **
Could not open up to friends	---	---	**3.07*** **	---	**2.03***	---	**1.85****	---
Feelings very easily hurt	**1.77****	**3.33*** **	**2.79*** **	**3.30****	**2.68*** **	**2.90*** **	**3.51*** **	**4.55*** **

SocP, social phobia; Agor, agoraphobia; PTSD, posttraumatic stress disorder; PD, panic disorder; SimP, simple phobia; GAD, generalized anxiety disorder; MD, major depression; Dys, dysthymia.
***p<0.001; **p<0.01; *p<0.05

Note: --- indicates that variable was excluded from the final model.

Table 4

Exploratory Multivariate Associations (Odds Ratios) Between Childhood Peer Relations and the NCS/DSM-III-R Anxiety and Mood Disorders for Females (N=1486)

	Anxiety Disorders						Mood Disorders	
Variable	SocP	Agor	PTSD	PD	SimP	GAD	MD	Dys
Very shy	**2.19*** **	---	---	---	---	---	---	---
Not at all popular	---	---	---	---	---	---	---	---
No Friends	---	**7.09** **	**6.57** **	**5.75***	---	**4.56***	---	**12.60*** **
Could not count on friends	---	---	---	---	---	---	---	**2.59** **
Could not open up to friends	---	**1.95***	**2.89*** **	---	---	---	**1.59***	---
Feelings very easily hurt	**2.07*** **	**2.11*** **	**2.47*** **	**1.77***	**1.59*** **	**1.88** **	**2.00*** **	**1.51***

SocP, social phobia; Agor, agoraphobia; PTSD, posttraumatic stress disorder; PD, panic disorder; SimP, simple phobia; GAD, generalized anxiety disorder; MD, major depression; Dys, dysthymia.

***p<0.001; **p<0.01; *p<0.05

Note: --- indicates variable was excluded from the model

Similar exploratory stepwise multivariate logistic regression analyses were conducted separately by gender using a split sample procedure for the purpose of determining whether extreme childhood shyness would predict social phobia and other anxiety and mood disorders when other potential predictors, such as childhood peer relations, as demonstrated in Table 1, and "low maternal warmth", as demonstrated in a previous study, (see Enns et al., 2002) and in Table 1, are included in the model. "Low maternal warmth" was included in order to determine if it has an additive effect over and above the peer relations variables in the prediction of social phobia and other anxiety and mood disorders. All of the childhood risk variables and "low maternal warmth" were entered simultaneously into the stepwise regression. The findings of these stepwise multivariate regression analyses for males are reported in Table 5. The findings of these analyses indicated that extreme shyness in conjunction with other childhood risk variables including "low maternal warmth" demonstrated a significant statistical association with social phobia but not for the remaining NCS-DSM-III-R disorders. The final predictive model for social phobia consisted of extreme shyness and two of the remaining childhood risk variables ("could not count on friends" and "feelings very easily hurt"). Dashed lines were used to indicate variables that were not included in the final models.

The same exploratory analytic procedures were conducted separately for females. All of the risk variables were entered simultaneously into the stepwise regression. The findings of these analyses for females, reported in Table 6, indicated that extreme childhood shyness in conjunction with other childhood risk variables including "low maternal warmth" once again demonstrated a significant statistical association with social phobia but not for the remaining NCS-DSM-III-R disorders. The final predictive model for social phobia consisted of extreme childhood shyness and one of the remaining childhood risk variables ("feelings very easily hurt") and "low maternal warmth".

Table 5

Exploratory Multivariate Associations (Odds Ratios) Between Childhood Peer Relations, Maternal Warmth and the NCS/DSM-III-R Anxiety and Mood Disorders for Males (N=1460)

	Anxiety Disorders						Mood Disorders	
Variable	SocP	Agor	PTSD	PD	SimP	GAD	MD	Dys
Very shy	**2.58****	---	---	---	---	---	---	---
Not at all popular	---	---	---	---	**2.86***	---	---	---
No Friends	---	---	**16.45****	---	---	---	---	**14.73***
Could not count on friends	**1.86***	---	---	---	---	---	---	**2.21***
Could not open up to friends	---	---	**2.56****	---	**2.03***	---	---	---
Feelings very easily hurt	**1.77****	**3.33*****	**2.58*****	**3.30****	**2.68*****	**2.48****	**3.48*****	**4.05*****
Low Maternal Warmth	---	---	**2.29****	---	---	**3.33*****	**2.90*****	**3.24*****

SocP, social phobia; Agor, agoraphobia; PTSD, posttraumatic stress disorder; PD, panic disorder; SimP, simple phobia; GAD, generalized anxiety disorder; MD, major depression; Dys, dysthymia.

***p<0.001; **p<0.01; *p<0.05

Note: --- indicates that variable was excluded from the final model.

Table 6

Exploratory Multivariate Associations (Odds Ratios) Between Childhood Peer Relations, Maternal Warmth and the NCS/DSM-III-R Anxiety and Mood Disorders for Females (N=1486)

	Anxiety Disorders						Mood Disorders	
Variable	SocP	Agor	PTSD	PD	SimP	GAD	MD	Dys
Very shy	**2.16*** **	---	---	---	---	---	---	---
Not at all popular	---	---	---	---	---	---	---	---
No Friends	---	**7.09** **	**5.86** **	**5.80***	---	4.06 ns	---	**12.63*** **
Could not count on friends	---	---	---	---	---	---	---	**1.91***
Could not open up to friends	---	**1.95***	**2.32** **	---	---	---	---	---
Feelings very easily hurt	**2.03*** **	**2.11*** **	**2.40*** **	---	**1.54** **	**1.76***	**2.88*** **	---
Low Maternal Warmth	**1.70** **	---	**2.70*** **	**2.62*** **	**1.62** **	**2.63*** **	**1.97*** **	**3.12*** **

SocP, social phobia; Agor, agoraphobia; PTSD, posttraumatic stress disorder; PD, panic disorder; SimP, simple phobia; GAD, generalized anxiety disorder; MD, major depression; Dys, dysthymia.
***p<0.001; **p<0.01; *p<0.05
Note: --- indicates that variable was excluded from the final model.

Replication of Multivariate Analyses for Anxiety and Mood Disorders

Replication analyses using multivariate logistic regression were conducted separately by gender using the remaining half of the NCS Part II respondents from the above mentioned split sample procedure. These analyses were conducted for the purpose of testing the significance of the models, consisting of extreme childhood shyness and other childhood risk variables, except "low maternal warmth", as predictors for social phobia and other anxiety and mood disorders, that were determined in the above mentioned exploratory analyses. Only the childhood risk variables found to be significant in the final exploratory models for males were entered into the logistic regression and they were entered simultaneously. The findings of these multivariate regression analyses for males are reported in Table 7. Variables that were not included in the model for replication analyses are indicated with a dashed line. The findings of these analyses indicated that extreme shyness in conjunction with other peer relations risk variables again demonstrated a significant statistical association with social phobia, however, the childhood risk variable "could not count on friends" was no longer statistically significant. Similarly, the models for the remaining NCS-DSM-III-R disorders resulted in some risk variables no longer being significant predictors. It is noteworthy that the "feelings very easily hurt" variable was a significant predictor for all diagnostic variables and across both genders.

Replication analyses using multivariate logistic regression were also conducted for females using the remaining half of the NCS Part II respondents from the above mentioned split sample procedure. Once again, only those childhood risk variables found to be significant in the final exploratory models for females were entered into the logistic regression and they were entered simultaneously. The findings of these multivariate regression analyses for females are reported in Table 8. The findings of these analyses indicated the model that included the extreme childhood shyness and one peer relations risk variable ("feelings very easily hurt") was replicated, in that a significant statistical

Table 7

Replication of Multivariate Associations (Odds Ratios) Between Childhood Peer Relations and the NCS/DSM-III-R Anxiety and Mood Disorders for Males (N=1478)

	Anxiety Disorders						Mood Disorders	
Variable	SocP	Agor	PTSD	PD	SimP	GAD	MD	Dys
Very shy	**1.64***	---	---	---	---	---	---	---
Not at all popular	---	---	---	---	**4.63****	---	---	---
No Friends	---	---	**.00*****	---	---	---	---	3.21 ns
Could not count on friends	1.13 ns	---	---	---	---	---	---	2.04 ns
Could not open up to friends	---	---	1.38 ns	---	1.01 ns	---	1.37 ns	---
Feelings very easily hurt	**2.11****	**2.74****	**4.92*****	**4.09*****	**3.88*****	**6.31*****	**2.57*****	**3.77*****

SocP, social phobia; Agor, agoraphobia; PTSD, posttraumatic stress disorder; PD, panic disorder; SimP, simple phobia; GAD, generalized anxiety disorder; MD, major depression; Dys, dysthymia.

***p<0.001; **p<0.01; *p<0.05

NOTE: ---- indicates variable was not included in the model.

Table 8

Replication of Multivariate Associations (Odds Ratios) Between Childhood Peer Relations and the NCS/DSM-III-R Anxiety and Mood Disorders for Females (N=1454)

	Anxiety Disorders						Mood Disorders	
Variable	SocP	Agor	PTSD	PD	SimP	GAD	MD	Dys
Very shy	**2.13*** **	---	---	---	---	---	---	---
Not at all popular	---	---	---	---	---	---	---	---
No Friends	---	1.86 ns	**6.65***	1.07 ns	---	.51 ns	---	2.20 ns
Could not count on friends	---	---	---	---	---	---	---	2.73 ns
Could not open up to friends	---	1.41 ns	**4.15*** **	---	---	---	**1.93***	---
Feelings very easily hurt	**1.86****	**1.68****	**2.22****	**2.84*** **	**2.09*** **	**3.07*** **	**2.40*** **	**1.87***

SocP, social phobia; Agor, agoraphobia; PTSD, posttraumatic stress disorder; PD, panic disorder; SimP, simple phobia; GAD, generalized anxiety disorder; MD, major depression; Dys, dysthymia.

***p<0.001; **p<0.01; *p<0.05

NOTE: ---- indicates variable was not included in the model.

association with social phobia was maintained. Similar to the replication analyses for males, some of the models for the remaining NCS-DSM-III-R disorders resulted in having some risk variables being no longer significant. Variables in the replication analyses that no longer remained significant are shown in the table and are indicated 'ns' for not significant.

Similar replication analyses were conducted separately by gender for the purpose of testing the significance of the models, consisting of extreme childhood shyness, other peer relations risk variables, and "low maternal warmth" as predictors for social phobia and other anxiety and mood disorders, that were determined in the above mentioned exploratory analyses. Only the childhood risk variables found to be significant in the final exploratory models for males were entered into the logistic regression and they were entered simultaneously. The findings of these multivariate regression analyses for males are reported in Table 9. The findings of these analyses indicated that extreme shyness in conjunction with other childhood risk variables again demonstrated a significant statistical association with social phobia, however, the childhood risk variable "could not count on friends" was no longer statistically significant. Similarly, the models for the remaining NCS-DSM-III-R disorders resulted in some risk variables no longer being significant predictors. It is noteworthy that the "feelings very easily hurt" variable was a significant predictor for all diagnostic variables for males.

Similar replication analyses were also conducted for females for the purpose of testing the significance of models consisting of extreme childhood shyness, other peer relations variables, and low maternal warmth as predictors for social phobia and other anxiety and mood disorders that were determined in the above mentioned exploratory analyses. Once again, only those risk variables found to be significant in the final exploratory models for females were entered into the logistic regression and they were entered simultaneously. The findings of these analyses for females, reported in Table 10,

Table 9

Replication of Multivariate Associations (Odds Ratios) Between Childhood Peer Relations, Maternal Warmth and the NCS/DSM-III-R Anxiety and Mood Disorders for Males (N=1478)

	Anxiety Disorders						Mood Disorders	
Variable	SocP	Agor	PTSD	PD	SimP	GAD	MD	Dys
Very shy	**1.64***	---	---	---	---	---	---	---
Not at all popular	---	---	---	---	**4.63****	---	---	---
No Friends	---	---	.00 ns	---	---	---	---	3.22 ns
Could not count on friends	1.13 ns	---	---	---	---	---	---	2.02 ns
Could not open up to friends	---	---	1.12 ns	---	1.01 ns	---	---	---
Feelings very easily hurt	**2.11****	**2.74****	**4.42*****	**4.09*****	**3.88*****	**6.68*****	**2.50*****	**3.76*****
Low maternal warmth	---	---	**2.51***	---	---	.60 ns	**1.69***	1.03 ns

SocP, social phobia; Agor, agoraphobia; PTSD, posttraumatic stress disorder; PD, panic disorder; SimP, simple phobia; GAD, generalized anxiety disorder; MD, major depression; Dys, dysthymia.

***p<0.001; **p<0.01; *p<0.05

NOTE: ---- indicates variable was not included in the model.

Table 10

Replication of Multivariate Associations (Odds Ratios) Between Childhood Peer Relations, Maternal Warmth and the NCS/DSM-III-R Anxiety and Mood Disorders for Females (N=1454)

	Anxiety Disorders						Mood Disorders	
Variable	SocP	Agor	PTSD	PD	SimP	GAD	MD	Dys
Very shy	**2.10*** **	---	---	---	---	---	---	---
Not at all popular	---	---	---	---	---	---	---	---
No Friends	---	1.86 ns	3.84 ns	1.02 ns	---	.31 ns	---	1.69 ns
Could not count on friends	---	---	---	---	---	---	---	2.74 ns
Could not open up to friends	---	1.41 ns	**3.43****	---	---	---	---	---
Feelings very easily hurt	**1.82****	**1.68****	**2.07****	---	**1.96*****	**2.83*****	**2.32*****	---
Low maternal warmth	1.35 ns	---	**2.67****	**2.51*****	**1.74****	**2.45*****	**2.43*****	**2.70*****

SocP, social phobia; Agor, agoraphobia; PTSD, posttraumatic stress disorder; PD, panic disorder; SimP, simple phobia; GAD, generalized anxiety disorder; MD, major depression; Dys, dysthymia. ***p<0.001; **p<0.01; *p<0.05
NOTE: ---- indicates variable was not included in the model.

indicated that the model including the extreme childhood shyness variable, one peer relations variable ("feelings very easily hurt") and "low maternal warmth" was not replicated. However, it was demonstrated that the extreme childhood shyness variable in conjunction with the "feelings very easily hurt" variable maintained a significant statistical association with social phobia. Similar to the replication analyses for males, some of the models for the remaining NCS-DSM-III-R disorders resulted in some risk variables being no longer significant. As can be seen in the tables, some of the odds ratios are quite high yet not significant. This is due to the broad range within the confidence interval. For example the association between "no friends" and PTSD has an odds ration of 3.84, yet is not significant due to the confidence interval which ranges from .87-17.07.

Multivariate Analyses for Social Phobia Subtypes

Multivariate logistic regression analyses were conducted, separately by gender, using participants from the NCS Part II data set for the purpose of comparing models with extreme childhood shyness and other peer relations risk variables as predictors for the two subtypes of social phobia (i.e. speaking-only and complex). Only those childhood peer relations variables found to be significant in the replication analyses of the final predictive model for social phobia (see Tables 7 & 8) were entered into the multivariate logistic regression and they were entered simultaneously. For males, those variables were "very shy" and "feelings very easily hurt". The findings of these analyses indicated that extreme shyness in conjunction with other peer relations risk variables demonstrated no significant statistical association with the speaking only subtype of social phobia. The same analyses were conducted for females. Again, only those variables found to be significant in the replication analyses of the final predictive model were entered into the

Table 11

Multivariate Associations (Odds Ratios) Between Childhood Peer Relations and Social Phobia Subtypes (N=2932; Males=1478; Females=1454)

	Social Phobia Subtypes			
	Speaking Only		Complex	
	Male	Female	Male	Female
Variables	Odds Ratio	Odds Ratio	Odds Ratio	Odds Ratio
Very shy	1.57 ns	1.38 ns	**2.19****	**2.52*****
Not at all popular	---	---	---	---
No friends	---	---	---	---
Could not count on friends	---	---	---	---
Could not open up to friends	---	---	---	---
Feelings very easily hurt	.75 ns	**1.65****	**2.67*****	**1.99*****

***p<0.001; **p<0.01; *p<0.05

NOTE: --- indicates variable was not included in the model

multivariate logistic regression (i.e. "very shy" and "feelings very easily hurt"). The findings of the analyses for females indicated that only the "feelings very easily hurt" variable was significantly associated with the speaking-only subtype of social phobia for females.

The findings of the multivariate regression analyses for males for the complex subtype of social phobia are also reported in Table 11. The findings of these analyses indicated that extreme childhood shyness and having one's "feelings very easily hurt" demonstrated a significant statistical association with the complex subtype of social phobia. The multivariate logistic regression analyses for females for the complex subtype of social phobia are also reported in Table 11 and indicated that, like the males, extreme shyness and having one's "feelings very easily hurt" demonstrated a significant statistical association with the complex subtype of social phobia. Since "low maternal warmth" did not prove to maintain a significant statistical association in conjunction with other risk variables in the final models in the analyses of multivariate associations between childhood risk variables, "low maternal warmth" and social phobia (see Tables 8&9), no multivariate logistic regression analyses were conducted using this risk variable, for those participants from the NCS Part II data set in order to determine the role of "low maternal warmth" as a predictor for the subtypes of social phobia.

Multivariate Analyses for Past History of Social Phobia

Finally, multivariate logistic regression analyses were conducted, separately by gender, using participants from the NCS Part II data set who had a lifetime history of social phobia but did not have social phobia in the past 12 months. These analyses were performed for the purposes of determining if individuals with past social phobia hold similar retrospective views of their childhoods as they pertain to various childhood risk

variables. Only those variables found to be significant in the replication analyses of the final predictive model (see Tables 7 & 8) were entered into the multivariate logistic regression and they were entered simultaneously. For males, those variables were "very shy" and "feelings very easily hurt". Findings indicated that only the extreme childhood shyness risk variable maintained a significant statistical association with social phobia for males. These findings are reported in Table 12. The same analyses were conducted for females. Again, only those variables found to be significant in the replication analyses of the final predictive model were entered into the multivariate logistic regression (i.e. "very shy" and "feelings very easily hurt"). Findings indicated that both childhood risk variables were found to maintain significantly statistical associations with social phobia. These findings are also reported in Table 12. Since "low maternal warmth" did not prove to maintain a significant statistical association in conjunction with other risk variables in the final models in the analyses of multivariate associations between childhood risk variables, "low maternal warmth" and anxiety and mood disorders, no multivariate logistic regression analyses were conducted using this risk variable, for those participants from the NCS Part II data set who had a lifetime history of social phobia but did not have social phobia in the past 12 months.

Table 12

Multivariate Associations (Odds Ratios) Between Childhood Peer Relations and Social Phobia for Individuals with Past Social Phobia (N=5877; Males=2938; Females=2939)

	Social Phobia	
	Males	Females
Variable	Odds Ratio	Odds Ratio
Very shy	**2.20****	**1.97*****
Not at all popular	---	---
No Friends	---	---
Could not count on friends	---	---
Could not open up to friends	---	---
Feelings very easily hurt	1.48 ns	**1.71****

***p<0.001; **p<0.01; *p<0.05

NOTE: ---- indicates variable was not included in the model.

Discussion

The primary objective of the present study was to examine the relationship between retrospective reports of extreme childhood shyness and social phobia in adults using data collected from the NCS (Kessler, et al., 1994). Most theoretical writings suggest that shyness is strongly associated with social phobia. However, the magnitude of this association has not yet been determined (Beidel & Turner, 1998). Further, the possibility that shyness might be a broad diathesis for a number of psychiatric disorders was also considered. Thus, the present study also examined the relationship between retrospective reports of extreme childhood shyness and lifetime history of other NCS/DSM-III-R psychiatric disorders to determine whether shyness is a risk factor for a variety of psychiatric disorders and not just for social phobia. As well, childhood interpersonal variables that have been implicated in the development of psychopathology (i.e. peer relations and parental relations) were also investigated in conjunction with extreme childhood shyness as a risk factor for social phobia. It has been previously determined that maternal warmth is the parental relations variable most consistently associated with adult psychopathology (Enns et al., 2002), and so the present study investigated the role of poor parental relations (specifically, low maternal warmth) and poor peer relations in association with social phobia. More importantly, the possibility that these relational variables may have additive effects (i.e. extreme childhood shyness in conjunction with other peer relations or shyness in conjunction with other peer relations and parental relations) in the risk for social phobia was also investigated. For the purpose of the present study, the risk factors that are identified as significant predictors in both the exploratory and replication analyses are emphasized as they represent the most consistent and likely replicable findings of the study.

The findings of the present study indicated that extreme shyness in children was most strongly related to social phobia in adults. Extreme shyness was also found to be

related to most NCS/DSM-III-R anxiety disorders and mood disorders for both males and females. However, extreme shyness in childhood was not found to have any relation with substance disorders or other disorders such as conduct disorder or antisocial personality disorder. Therefore, partially consistent with the hypothesis, extreme childhood shyness was found to serve as a broad diatheses for anxiety and mood disorders, however, it was not found to serve as a diathesis for substance and other disorders.

Several earlier findings suggest that extreme shyness in children would be found to be a broad diathesis for anxiety and mood disorders. First, Kessler et al. (1997) investigated childhood adversities and determined childhood adversities were associated with a broad range of psychopathology and showed little specificity. Further, the finding that extreme childhood shyness serves as a diathesis for depression is consistent with earlier findings from Lewinsohn (1974) and Joiner (1997). It was expected that extreme childhood shyness would serve as a broad diathesis for substance disorders, namely alcohol abuse, since there has been much research regarding the use of alcohol and other substances to self-medicate for social anxiety (e.g. Marshall, 1994) however, the findings of the present study did not support this hypothesis.

The findings of the present study also indicated that many of the childhood peer relations variables were associated with adult social phobia as well as most other psychiatric diagnoses. For example, it was not surprising that some of the childhood peer relations variables, such as "not at all popular" and "no friends" were associated with disorders such as conduct and antisocial personality disorder, since individuals with these disorders would likely have difficulty, or little interest in, maintaining friendships. Interestingly, the childhood peer relations variables "no friends", "not at all popular", and "could not open up to friends" were significantly related to a reduced risk of drug abuse. Perhaps this is due to the fact that having a lack of friends or not being popular would reduce the amount of peer pressure to participate in social drug use behaviour.

In general, however, there was no consistent pattern to the associations between peer relations variables and the psychiatric diagnoses except for the "feelings very easily hurt" variable. This childhood peer relations variable taps into the one's sensitivity, which is a component of the broad spectrum of neuroticism. Neuroticism is a higher-order personality dimension that consists of a temperamental sensitivity to negative stimuli, emotional instability and maladjustment (Goldberg, 1992) and represents a broad psychological vulnerability for a wide range of distress disorders (Costa & McCrae, 1992). Thus it is not surprising that the "feelings very easily hurt" variable is associated with the various psychiatric diagnoses.

The present study also determined that the parental relations variable of "low maternal warmth" was found to be related to social phobia in adult females but not males. As expected, since children are generally more influenced by their same sex parent (Block et al., 1973), the female child is more likely to experience a greater influence of the mother's parenting style than is the male child. Further, the findings of this study determined that the parental relations variable, "low maternal warmth", was related to most of the psychiatric diagnoses for males (i.e. 9 of 14) and to nearly all of the psychiatric diagnoses for females (i.e. 13 of 14). This concurs with the theories put forth by Arrindell et al. (1983) and Bowlby (1973) in which it was suggested that insufficient parental affection or lack of care has a role to play in the development of psychopathology and, in particular, phobic disorders. The present study extended Enns et al.'s (2002) findings that maternal warmth is the parental variable most consistently associated with psychopathology, in order to compare parental and peer relations simultaneously and find robust effects for maternal warmth. These findings are discussed below.

As mentioned earlier, social phobia consists of two distinct subtypes, complex (generalized) social phobia, which is more pervasive and more problematic, and speaking-only (non-generalized) social phobia (Kessler et al., 1998; Stein & Chavira, 1998). The

findings of the present study also indicated that extreme childhood shyness was related to the speaking-only subtype of social phobia for females but not for males. Further, only the "no friends" peer relations variable was related to the speaking-only subtype of social phobia for males and interestingly, it was significantly related to a reduced risk. It may be that individuals who report having no friends may not have desired to have friends. Therefore the negative association between the "no friends" variable and social phobia may have occurred because those individuals reporting a lack of friends during childhood may not have desired friends and would have been unlikely to be concerned about being evaluated by others, a central component of social phobia. The only peer relations variable that proved to be related to the speaking-only subtype of social phobia for females was the "feelings very easily hurt" variable. Further, the "low maternal warmth" variable was shown to place males at a reduced risk for the speaking-only subtype of social phobia as compared with females, where there was no significant relationship. This finding is inconsistent with the theories put forth by Arrindell et al. (1983) and Bowlby (1973) that insufficient affection may play a role in phobic disorders, however, since the inadequate affection is coming from the parent of the opposite sex, it may have less influence on the child as argued by Block et al. (1973). Further, the speaking-only subtype of social phobia is not as severe a disorder as the complex subtype. The latter subtype has more impairment and disruption across a number of life domains and the findings of the present study suggest that even childhood domains are affected.

With regard to the complex-subtype of social phobia, the findings of the present study indicated that extreme childhood shyness placed both males and females at elevated risk, which was consistent with hypothesis. This was not surprising given the broad nature of shyness and the fact that chronic shyness is thought to include a fear of negative evaluation (Beidel & Turner, 1999; Henderson, 1992). These findings also concur with the findings that extreme childhood shyness serves as a broad diathesis for many psychiatric

disorders. As indicated earlier, individuals with complex social phobia have a higher prevalence of comorbid conditions than those with speaking-only social phobia (Kessler et al., 1998). There is widespread distress and interference associated with the complex subtype of social phobia and the findings of the present study suggest that it can be traced back even to childhood problems related to extreme shyness growing up. Thus, if extreme childhood shyness proved to be a diathesis for complex social phobia, it was likely that it would also prove to be a diathesis for other psychopathologies as well, given the propensity for comorbidity among the complex social phobia subtype.

Further, each of the peer relations variables were also shown to place both males and females at increased risk for complex social phobia. This is not surprising given the findings of LaGreca et al. (1988), which stated that adolescents with higher levels of social anxiety reported having fewer close friendships and perceived those close friendships as being less supportive and less intimate when compared to their less socially anxious peers. The "low maternal warmth" variable also was shown to be associated with increased risk of complex social phobia for both males and females, although this association was stronger amongst females. This again concurs with the findings by Block et al. (1973) that children are generally more influenced by their same sex parent and so the female child is more likely to experience a greater influence of the mother's parenting style than is the male child.

The present study attempted to develop a model including extreme childhood shyness and childhood peer relations variables that place individuals at risk for social phobia in adulthood. In order to be able to test this model, a split sample procedure was employed whereby half of the NCS Part II respondents were randomly selected. The first half of the sample was used to develop the model using exploratory analyses. The model was then tested on the remaining half of the sample through the use of replication analyses. This procedure was carried out for extreme childhood shyness in conjunction with the

childhood peer relations variables. It was also carried out for extreme shyness in conjunction with childhood peer relations variables and low maternal warmth in an effort to extend Enns et al.'s (2002) findings and compare parental and peer relations simultaneously and find robust effects for low maternal warmth. Since extreme childhood shyness was shown to be a broad diathesis for both anxiety and mood disorders but not substance or other disorders, these models were developed for all anxiety and mood disorders to determine if the models would also hold across all anxiety and mood disorders.

With regard to the exploratory models for extreme childhood shyness in conjunction with childhood peer relations variables, extreme childhood shyness was shown to be specific only to social phobia and not to other anxiety or mood disorders for both males and females. For males, the exploratory model for social phobia consisted of the extreme childhood shyness, "could not count on friends" and "feelings very easily hurt" variables. An interesting finding for males was that not being popular was significantly associated with simple phobia. This suggests that bravery is valued in boys and that perhaps fearful boys are rejected. For females, the exploratory model for social phobia consisted of the extreme childhood shyness and the "feelings very easily hurt" variables. It is noteworthy that the "feelings very easily hurt" variable was included in the model for all mood and anxiety disorders for both males and females. As mentioned above, this variable taps sensitivity, which is part of the broad spectrum of neuroticism. However, when this variable was statistically controlled for, extreme childhood shyness was still found to be significantly associated with social phobia. This would suggest that shyness is a trait that is more specific than the broad traits of neuroticism or sensitivity and so extreme childhood shyness would be able to contribute unique variance to the prediction of social phobia beyond sensitivity.

With regard to the exploratory models for extreme childhood shyness in conjunction with childhood peer relations variables and "low maternal warmth", extreme

childhood shyness was once again shown to be specific only to social phobia and not to other anxiety or mood disorders for both males and females. For males, the exploratory model for social phobia consisted of the extreme childhood shyness, "could not count on friends" and "feelings very easily hurt" variables. The "low maternal warmth" variable did not prove to be a significant factor in the model for social phobia or the other anxiety disorders but it did prove to be a significant predictor in the models for the mood disorders for males. For females, the exploratory model for social phobia consisted of the extreme childhood shyness, "feelings very easily hurt", and "low maternal warmth" variables. For females, the "low maternal warmth" variable did prove to be significant in the model for social phobia as well as for all other disorders except agoraphobia. This ties in with the evidence put forth by Block et al. (1973) that children receive greater influence from their same sex parent. It is noteworthy that the "feelings very easily hurt" variable was included in the model for all mood and anxiety disorders for both males and females with the exception of panic disorder for females. Once again, even when the neuroticism related variable of "feelings very easily hurt" is controlled for, extreme childhood shyness proves to be significantly associated with social phobia, suggesting that shyness is a trait more specific to social phobia than simply sensitivity.

Replication analyses of the exploratory models were conducted using the remaining half of the sample. The model for social phobia, which included extreme childhood shyness and childhood peer relations variables, did not prove to replicate completely for males. Further, the model for social phobia, which included extreme childhood shyness, peer relations variables and "low maternal warmth" did not replicate for either males or females. However, extreme childhood shyness remained significant in both sets of models for males and females demonstrating the strength of its specificity to social phobia. It is noteworthy that the "feelings very easily hurt" variable remained significant for all models in the replication analyses. Again, extreme childhood shyness still proved significant over and

above this neuroticism related variable for both males and females, once again suggesting that shyness is a trait that encompasses more than simply sensitivity. Interestingly, the magnitude of the association of extreme childhood shyness with social phobia was considerably higher for females than males, suggesting that extreme childhood shyness is more salient in the development of social phobia for females than for males when additive variables are taken into account. Perhaps socialization experiences have an important role and that peer relations relevant to the development of social phobia are different for females than males. Further research needs to be conducted into what variables predict the onset of social phobia for men versus women. The "low maternal warmth" variable did not remain significant in the model for social phobia but did replicate for all other psychiatric disorders models in which it was included for females, suggesting that maternal affection may not have a particularly large role in the development of social phobia for females when in conjunction with other childhood risk variables (i.e. peer relations variables). This finding is inconsistent with theories put forth by Bowlby (1973) and Arrindell et al. (1983, 1989) in that insufficient affection is implicated in the development of phobic disorders.

It is worth noting some additional, yet interesting findings that showed up in the exploratory analyses and were then somewhat replicated in the final analyses. There was a significant association between the childhood peer relations variable "not at all popular" and simple phobia in the exploratory analyses that were conducted for the childhood peer relations variables for males. While the entire model for simple phobia did not replicate completely, it is interesting to note that this association between not being popular and simple phobia did hold up. This suggests that bravery is valued among boys and that fearful boys are rejected by their peers. Further, in the exploratory analyses that were conducted for the childhood peer relations in conjunction with low maternal warmth for females, a significant association was demonstrated between "could not open up to friends" and posttraumatic stress disorder. While the entire model did not replicate for PTSD, this

relationship between the inability to open up to friends and PTSD did hold up. This suggests that there is ruminative behaviour, and a lack of emotional processing taking place among women, as well as an ability and tendency to "bottle things up". Interestingly these are all traits of posttraumatic stress disorder.

The present study also examined whether the extreme childhood shyness and childhood peer relations variables that were shown to place individuals at risk for social phobia in adulthood would serve as predictors for certain subtypes of social phobia. The findings determined that extreme childhood shyness is not a good indicator for the speaking-only subtype of social phobia for either males or females. However, extreme childhood shyness did present as a strong indicator of complex social phobia for both males and females. Once again the "feelings very easily hurt" variable remained a significant predictor for the complex subtype for both males and females and for the speaking-only subtype for females. As in the above models, shyness still proved significant over and above this neuroticism related variable for both males and females, once again suggesting that shyness is a trait that is more specific to social phobia than simply sensitivity.

These findings suggest that extreme shyness holds more importance for the complex subtype of social phobia than for the speaking-only subtype. Perhaps it is that the speaking-only subtype of social phobia is more influenced by conditioning. Mowrer (1960) provides a two-factor theory explaining the acquisition and maintenance of social phobia. An individual may experience one or more traumatic or embarrassing social interactions resulting in the acquisition of a conditioned response to anxiety, embarrassment, and/or humiliation. Future situations, which are similar, may evoke this conditioned response. Through generalization, the range of social situations that may evoke such responses is expanded. In contrast, temperamental variables, such as shyness and sensitivity, are likely

to be more strongly associated with complex social phobia, which is a more treatment resistant, pervasive, and disabling form of social phobia.

The findings consistently indicated that extreme shyness is not as strongly associated with social phobia (and in particular complex social phobia) in males as it is in females. Perhaps socialization experiences and male gender roles result in men being exposed to situations that would help them overcome extreme shyness. For example, men are more likely to work outside the home than are females and this may provide exposure to social situations and could consequently prevent shyness from developing into social phobia. This is partly consistent with Beidel and Turner's (1998) argument that shy individuals can engage socially both interactionally and at the performance level when necessary. In contrast, it may be more acceptable and likely for a woman with extreme shyness to avoid social situations, such as work outside the home, and this resulting avoidance of social situations could further exacerbate extreme shyness to the point where it develops into social phobia. This is also in concordance with studies put forth by Caspi et al. (1988) and Kerr et al. (1996) in which, compared with nonshy counterparts, shy males were significantly later establishing careers while shy females had either no work history or ended their employment upon marrying and entering motherhood. Further research into the types of variables that put place females at risk is warranted.

Lastly, the present study examined whether those individuals with a past history of social phobia but have not experienced it in the past 12 months held similar retrospective views of their childhood experiences as they pertain to the various childhood risk variables. The findings indicate that for those individuals with a past history of social phobia, extreme childhood shyness was a strong indicator of social phobia for both males and females. This indicates that association between retrospective reports of extreme childhood shyness and social phobia is not simply due to those individuals with current social phobia having negative and affective state dependent views of their childhood experience.

In summary, it appears that extreme shyness serves as a diathesis not only for social phobia but for a variety of anxiety and mood disorders. However, when peer relations variables and/or maternal warmth variables are also considered (i.e. included in the a statistical model), specificity of extreme childhood shyness for social phobia, and in particular, the complex subtype of social phobia was demonstrated. Further, the magnitude of the association of extreme childhood shyness with social phobia was considerably higher for females than males, suggesting that females are at a greater risk for social phobia when additive variables such as peer relations are taken into account. Likewise, the addition of maternal warmth in conjunction with peer relations results in the magnitude of the association of extreme shyness with social phobia being considerably higher for females.

The limitations of the present study warrant consideration. One limitation of the present study is its cross-sectional design. While it would be ideal to conduct a longitudinal study in this area, it would be extremely difficult to conduct such a study with this number of participants over a period of many years. Another limitation of the present study is response bias. Extreme childhood shyness was not as strongly associated with social phobia for males as it was for females. This might be due to socialization experiences and male gender roles result in males being exposed to situation that would help them overcome extreme shyness. For example, men are more likely to work outside the home than are females and this may provide exposure to social situations and could consequently prevent extreme shyness form developing into social phobia. Further, it may be more acceptable and likely for females with extreme shyness to avoid social situations, such as work outside the home, and this resulting avoidance of social situations could further exacerbate extreme shyness to the point where it develops into social phobia.

It is important to note that the associational data in the present study may also be an important limitation, in that having social phobia may influence individuals' retrospective

reports of extreme childhood shyness. However, the associations observed in this study between extreme childhood shyness and lifetime history of social phobia is not due to current social phobia, as demonstrated in Table 12 of the results. It was determined that for individuals with past history but not currently experiencing social phobia, the association between retrospective reports of extreme childhood shyness and social phobia is not simply due to those individuals with current social phobia having negative and affective state dependent views of their childhood experience. Perhaps the largest limitation is the retrospective nature of the study. The retrospective reports of the participants are subject to recall bias. However, as argued by Kessler et al. (1997) retrospective studies can prove useful in the provision of preliminary information to target modifiable risk factors "for experimental interventions and to narrow the range of issued examined in subsequent naturalistic prospective studies" (p. 1101).

Aside from its limitations, the present study also has some important implications. The present study was aimed at determining whether retrospective reports of extreme childhood shyness are associated with social phobia. Existing studies have used non-representative clinical samples and therefore cannot provide accurate estimates of the association between these variables. The nationally representative nature of the sample used in the present study represents a methodological advance that is necessary to obtain accurate estimates of the associations between the study variables. The study suggests that men reporting extreme childhood shyness are about 2.7 times as likely as their nonshy male counterparts to develop social phobia whereas women reporting extreme childhood shyness are about 2.9 times as likely when compared to nonshy female counterparts. Not all individuals who labelled themselves as shy during childhood will develop social phobia. Thus, one key area for future research is to more clearly determine which children are likely to overcome extreme shyness and the social anxieties and discomforts that accompany it and which are not. As well, more attention needs to be paid to looking at

those predictors of social phobia that are specific to males and females in order to determine which are most relevant to them.

The present study provides information that may aid in the development of a model regarding the role of extreme childhood shyness in the development of social phobia. The present investigation of other risk factors, such as peer relations and lack of maternal warmth, that have additive effects in the relationship between extreme childhood shyness and social phobia is an important contribution. Such information could be used to develop prevention strategies. That is, specific patterns of extreme childhood shyness, peer relations and maternal warmth could serve to identify individuals to whom prevention efforts should be targeted. For example, the present findings suggest that, for males, prevention efforts should be targeted to individuals with extreme shyness and interpersonal sensitivity (i.e. feelings are very easily hurt). Further, different subtypes of social phobia were demonstrated to have different predictors and this information is an important contribution for the development of prevention and treatment strategies specific to each of these two forms of social phobia. Lastly, early intervention for extremely shy children appears warranted for the prevention of adult social phobia.

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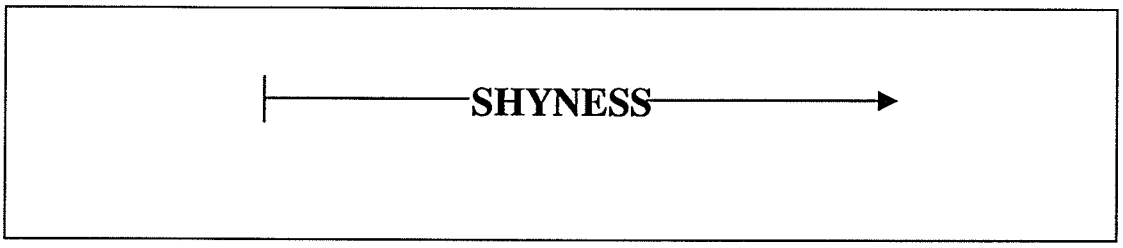
Appendix A

Continuum of Social Anxiety (McNeil, 2001)



Fearlessness	Normal range and intensity of anxiety	Anxiety disorders

Appendix B

Questions from the NCS used for the purposes of diagnosing 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?

...having to use the toilet when away from home?

...eating or drinking in public?

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

...writing while someone watches?

...talking in front of a small group of people?

Appendix C

Question from the NCS to assess retrospective reports of childhood shyness:

When you were growing up, how shy were you around other children you did not know well – very shy

somewhat shy

not very shy or

not at all shy?

Appendix D

Question from NCS to assess peer relations:

When growing up, how popular were you with other children -- very popular, somewhat, not very, or not at all popular?

Did you have a lot of friends, a few friends, or no friends at all?

When growing up, how much could you count on your friends when things went wrong -- a lot, some, a little, or not at all?

How much could you open up to your friends about your problems -- a lot, some, a little, or not at all?

How easily were your feelings hurt by things that other children said about your or did to you -- very easily, somewhat, not very, or not at all easily?

Appendix E

Items from the abbreviated 8-item Parental Bonding Instrument utilized in the NCS for the purpose of assessing maternal warmth:

How much did she understand your problems and worries – a lot, some, a little, or not at all?

How much could you confide in her about things that were bothering you – a lot, some, a little, or not at all?

How much effort did she put into watching over you and making sure you had a good upbringing – a lot, some, a little, or not at all?