Published in final edited form as:
Psychol Med. 2008 January ; 38(1): 15–28.

Social Fears and Social Phobia in the United States: Results from the National Comorbidity Survey Replication

Ayelet Meron Ruscio[1], **Timothy A. Brown**[2], **Wai Tat Chiu**[3], **Jitender Sareen**[4], **Murray B. Stein**[5], and **Ronald C. Kessler**[3]

1 *Department of Psychology, University of Pennsylvania*

2 *Department of Psychology, Boston University*

3 *Department of Health Care Policy, Harvard Medical School*

4 *Department of Psychiatry and Community Health Sciences, University of Manitoba*

5 *Department of Psychiatry, University of California, San Diego*

Abstract

Background—Despite heightened awareness of the clinical significance of social phobia, information is still lacking about putative subtypes, functional impairment, and treatment-seeking. New epidemiologic data on these topics are presented from the National Comorbidity Survey Replication (NCS-R).

Methods—The NCS-R is a nationally representative household survey fielded in 2001–2003. The WHO Composite International Diagnostic Interview (CIDI 3.0) was used to assess 14 performance and interactional fears and DSM-IV social phobia.

Results—The estimated lifetime and 12-month prevalence of social phobia are 12.1% and 7.1%. Performance and interactional fears load onto a single latent factor, and there is little evidence for distinct subtypes based either on the content or number of fears. Social phobia is associated with significant psychiatric comorbidity, role impairment, and treatment-seeking, all of which have a dose-response relationship with number of social fears. However, social phobia is the focus of clinical attention in only about half of cases where treatment is obtained. Among non-comorbid cases, those with the most fears were least likely to receive social phobia treatment.

Conclusions—Social phobia is a common, under-treated disorder that leads to significant functional impairment. Increasing numbers of social fears are associated with increasingly severe manifestations of the disorder.

Social phobia, also known as social anxiety disorder, is a condition involving marked anxiety about social or performance situations in which there is a fear of embarrassing oneself under scrutiny by others (American Psychiatric Association, 1994). Epidemiological surveys have shown social phobia to be a common disorder characterized by substantial comorbid psychopathology and functional impairment (Furmark *et al.*, 1999, Magee *et al.*, 1996, Schneier *et al.*, 1992, Stein *et al.*, 2000, Wittchen *et al.*, 1999). Social phobia's earlier onset than many other mental disorders (Kessler *et al.*, 2005, Kessler *et al.*, 1999, Weissman *et al.*, 1996, Wittchen *et al.*, 1999) and close association with putative anxiety risk factors such as behavioral inhibition (Hayward *et al.*, 1998, Turner *et al.*, 1996) and low positive affect (Mineka *et al.*, 1998) suggest that social phobia may be an important target for broader

Correspondence concerning this article should be addressed to Ayelet Meron Ruscio, Department of Psychology, University of Pennsylvania, 3720 Walnut Street, Philadelphia, PA, USA 19104. Voice: 215-573-4113; Fax: 215-898-7301; E-mail: ruscio@psych.upenn.edu.

prevention efforts as well as a significant condition in its own right. However, despite growing awareness and understanding of social phobia (Coles and Horng, 2006, Heimberg *et al.*, 1995, Tarrier, 2004), information is lacking on key aspects of the disorder. The current report aims to address some of these gaps using data from the recently completed National Comorbidity Survey Replication (NCS-R) (Kessler and Merikangas, 2004).

The NCS-R expands on earlier epidemiological surveys of social phobia in four important ways. First, previous community surveys have yielded widely varying estimates of the prevalence of social phobia and, consequently, the extent of the public health problem posed by the disorder (Alonso *et al.*, 2004, Grant *et al.*, 2005, Magee *et al.*, 1996, Stein *et al.*, 1994). To provide a more definitive prevalence estimate, social phobia diagnoses in the NCS-R were validated through independent semi-structured clinical interviews. Second, although there is considerable interest in potential subtypes of social phobia (Furmark *et al.*, 2000, Heimberg *et al.*, 1993, Hofmann *et al.*, 2004, Stein *et al.*, 2000), few previous surveys have included a sufficiently large set of situational probes to test for subtype distinctions. The NCS-R assessed a larger number of social situations than previous surveys in order to address this issue, expanding in particular the assessment of interactional social fears. We consider evidence for subtypes based on number of social fears, such as the DSM-IV generalized subtype involving fears of "most" social situations, and subtypes based on content of social fears, such as the distinction between performance and interactional fears that has been emphasized by some experts (Hook and Valentiner, 2002, Turner *et al.*, 1992). Third, prior surveys have been limited by global measures of functional impairment and by a failure to separate the impairment due to social phobia versus comorbid conditions. The NCS-R included a more extensive assessment of impairment than previous surveys and also assessed a wide range of comorbid DSM-IV disorders. We control for comorbid disorders to evaluate the unique effects of social phobia on role impairment. Finally, little is known about help-seeking in social phobia. We present novel data on utilization of mental health services by those with the disorder, including the proportion of affected cases who report receiving treatment specifically for social phobia.

METHODS

Sample

The NCS-R is a nationally representative face-to-face household survey of people ages 18+ fielded between February 2001 and December 2003. Respondents were sampled using a multi-stage clustered area probability design. As in the baseline NCS (Kessler *et al.*, 1994), an initial recruitment letter and study fact brochure were followed by a visit from a professional survey interviewer, who described the study and obtained verbal informed consent before the interview. The response rate was 70.9%.

The NCS-R interview included two parts administered in one session. Part I comprised the core diagnostic assessment and was administered to all respondents (n = 9282). Part II assessed additional disorders and correlates and was administered to all Part I respondents with any lifetime core disorder plus a probability subsample of other respondents (n = 5692). The Part I sample is used here to examine prevalence and course, role impairment, treatment, and comorbidity of DSM-IV social phobia with other Part I disorders. The Part II sample is used to examine socio-demographic correlates and comorbidity with disorders assessed only in the Part II sample. The Part I sample was weighted to adjust for differential probability of selection and for residual variation between sample and population distributions on geographic and socio-demographic variables in the 2000 US Census. The Part II sample was additionally weighted to adjust for the higher selection probability of Part I respondents with a lifetime disorder. Further description of NCS-R sampling and weighting procedures appears elsewhere (Kessler and Merikangas, 2004).

Social fears and social phobia

Social phobia was assessed by Version 3.0 of the World Health Organization Composite International Diagnostic Interview (CIDI 3.0; Kessler and Ustun, 2004), a fully structured lay-administered interview. Respondents were administered the social phobia section if they endorsed a diagnostic stem question for either a performance or an interactional fear that was excessive and caused substantial distress, nervousness, or avoidance. The social phobia section assessed lifetime experiences of shyness, fear, or discomfort in each of 14 social situations. Respondents endorsing one or more of these fears were asked about age of the first fear and age of first avoidance. Responses of "all my life" or "as long as I can remember" were probed to determine whether onset occurred before first starting school (coded as age 4) or else before (age 12) or after (age 13) the teenage years. Respondents were then assessed for DSM-IV social phobia. DSM-IV diagnostic hierarchy rules were not applied in making diagnoses of social phobia or any other mental disorder in order to minimize the impact of uncertain hierarchical exclusions on the relationship of social phobia with other disorders. The CIDI social phobia diagnoses subsequently were compared to clinical diagnoses based on the Structured Clinical Interview for DSM-IV (SCID) (First *et al.*, 2002) in blind clinical re-interviews of a probability subsample of NCS-R respondents (Kessler *et al.*, 2004). The area under the receiver operating characteristic curve was 0.65 and the κ value (standard error) was 0.35 (0.07). The estimated prevalence of social phobia diagnosed by the CIDI was somewhat lower than that diagnosed by the SCID (McNemar $\chi^2_1 = 5.7$, $p = .017$), suggesting that the CIDI diagnoses are conservative.

Comorbid DSM-IV disorders

Other anxiety, mood, substance use, and impulse-control disorders were assessed using CIDI 3.0. As detailed elsewhere (Haro *et al.*, 2006), blinded clinical reappraisal interviews using the SCID found generally good concordance between CIDI and SCID diagnoses of anxiety, mood, and substance use disorders. Diagnoses of impulse-control disorders were not validated due to the absence of a gold standard clinical assessment for these disorders in adults.

Other measures

Other correlates of social phobia examined here include socio-demographics, role impairment, and treatment-seeking. The socio-demographic variables include age at interview, sex, race-ethnicity, education, marital status, employment status, and family income. Impairment among 12-month cases was assessed by the Sheehan Disability Scales (Leon *et al.*, 1997), which asked about interference caused by social phobia in the domains of home management, work, close relationships, and social life during the month in the past year when social phobia was most severe. Each domain was self-rated by respondents on a 0–10 scale reflecting the extent to which social phobia interfered with the respondent's ability to function in the domain. Responses were collapsed into broad categories of Severe Impairment (responses in the range 7–10) and Any Impairment (in the range 1–10). Lifetime and 12-month treatment were assessed specifically for social phobia and more generally for any mental health problem. Use of mental health services was assessed within five sectors: general medical, psychiatry, non-psychiatry mental health specialty, human services, and complementary-alternative.

Statistical analysis

Cross-tabulations were used to estimate prevalence of social fears and social phobia. Tetrachoric factor analysis was used to investigate the number of factors underlying the 14 social fears assessed by the CIDI. Latent class analysis (Goodman, 2002), performed using the iterative-fitting NAG FORTRAN library routine E04UCF (Numerical Approximation Group, 1990), was used to investigate the possibility of non-additivities in the associations among social fears. Selection of the optimal number of latent classes was based on the Bayesian

Information Criterion (BIC; Burnham and Anderson, 1998). The program selected random start values and replicated results 25 times to ensure there was no local minimum problem in solutions. The actuarial method (Halli and Rao, 1992), a statistical method for projecting the risk of disorder onset in any given year of life, was used to estimate age-of-onset distributions for four mutually exclusive social phobia subgroups distinguished by their number of social fears. Associations of social phobia and the four subgroups with comorbid disorders and socio-demographics were estimated using logistic regression. Conditional probabilities of impairment and treatment-seeking were examined using cross-tabulations. Standard errors and significance tests were estimated using the Taylor series linearization method (Wolter, 1985) implemented in the SUDAAN (Research Triangle Institute, 2002) software system to adjust for weighting and clustering in the NCS-R sample design. The associations of social phobia with multivariate correlates (e.g., the set of 3 dummy variables representing education) were evaluated using Wald χ^2 tests based on design-corrected coefficient variance-covariance matrices. Statistical significance was determined using two-tailed .05-level tests.

RESULTS

Prevalence

As has been reported elsewhere (Kessler, Berglund, *et al.*, 2005; Kessler, Chiu, *et al.*, 2005), prevalence estimates (standard error) for lifetime and 12-month DSM-IV social phobia are 12.1% (0.4) and 7.1% (0.3), respectively. Nearly one-fourth (24.1%) of all respondents in the survey reported at least one lifetime social fear, roughly twice the number of respondents with lifetime social phobia. (Table 1) The most common lifetime social fears among those considered here are public speaking (21.2%) and speaking up in a meeting or class (19.5%). The least common fears are using a bathroom away from home (5.7%) and writing, eating, or drinking while being watched (8.1%).

Conditional probability of social phobia does not differ strongly across the social fears considered here. In contrast, a monotonic relationship exists between number of social fears and lifetime prevalence of social phobia, with conditional probabilities ranging from a low of 12% among respondents with only 1 fear to nearly 80% among respondents with all 14 fears considered here. Seventy-one percent of respondents estimated to meet lifetime criteria for social phobia met our operational definition of generalized social phobia by reporting 8 or more fears.

Latent structure

Tetrachoric correlations were calculated among the 14 performance and interactional fears in the total sample and found to range from a low of .73 to a high of .98 with an inter-quartile range of 0.85–0.91 (detailed results available on request). Factor analysis of this matrix found a strong first factor (eigenvalue of 12.3) and a negligible second factor (eigenvalue of 0.2). Item loadings on the first unrotated factor from this analysis ranged from .82 (using public bathrooms) to .98 (meeting new people, speaking up in a meeting/class, public speaking).

A latent class analysis was performed to investigate the possibility that non-additive associations among fears exist that were missed by the factor analysis, which ignores interactions among items. If so, this could lead to more differentiation in the structure of multivariate fear profiles than suggested by the strong unidimensionality found in the factor analysis. A four-class solution provided the best fit to the data among respondents with lifetime social phobia based on a lower value of BIC (15,416) than was obtained for other models (15,442–15,751). Class proportions range from a low of 17.1% of cases in Class 1 to 36.0% of cases in Class 3. The general pattern is for conditional probabilities of individual fears to increase monotonically from Classes 1 through 4, with the average number of fears among

respondents in the classes ranging from a low of 5.2 in Class 1 to 6.9 in Class 2, 9.3 in Class 3, and 12.0 in Class 4 (conditional probability estimates within classes available on request). Of 39 pair-wise comparisons across contiguous classes (i.e., each of 13 fears compared in Classes 1 vs. 2, 2 vs. 3, and 3 vs. 4), 85% show the conditional probability of the fear to be higher in the higher class and all but one violation of this pattern is substantively insignificant. The single exception is a substantially higher conditional probability of fear of writing, eating, or drinking while being watched in Class 1 (99%) than in Classes 2–4 (25–83%). This finding might be taken to mean that Class 1 defines a unique profile of performance fears. However, fear of going to parties, an interactional fear, also has a high conditional probability in Class 1, arguing against this interpretation. Based on these observations, in conjunction with the strong general pattern of monotonicity in the table and the strong unidimensionality of the factor analysis results, we made no distinction between performance and interactional fears in subsequent analyses.

The finding of nested latent classes in which the predicted probabilities of varied social fears are generally higher in higher classes suggests that the classes are describing different levels of severity along a single dimension. As the four classes were differentiated largely by number of fears, respondents who met CIDI criteria for lifetime social phobia were classified into one of four ordered subgroups based on the number of fears they reported: 1–4 (10.3%), 5–7 (18.6%), 8–10 (31.0%), and 11+ (40.1%). The latter two subgroups feared more than half of the 14 situations assessed and consequently were considered to meet the DSM-IV definition of generalized social phobia, which requires fears about “most” social situations. The generalized group was further subdivided based on the observation that conditional risk of social phobia increases markedly with 11 or more fears. The non-generalized group was further subdivided to examine the subset of cases falling closest to the diagnostic boundary, with the cut at 4 or fewer fears chosen to ensure a sufficient sample size in each non-generalized subgroup.

Age-of-onset distributions

Cumulative distributions of age at first fear were found to differ significantly across the four social phobia subgroups ($\chi^2_3 = 27.6$, $p < .001$). (Figure 1) Number of fears is positively associated with early onset of social fear, although the age-of-onset distributions for subgroups with 5–7, 8–10, and 11+ fears are substantively quite similar in that all have their highest slope between early childhood and mid-adolescence and there are few new onsets after the teen years. In contrast, the subgroup with 1–4 fears has a shallower slope, with fewer childhood onsets and a more gradual accumulation of new cases into the mid-20s.

Separate analysis in the subsample of respondents who report avoidance finds that avoidance is significantly related to number of fears (results not shown, but available on request). Avoidance of social situations is least common in the subgroup with 1–4 fears (67.5%) and increases monotonically with 5–7 (74.8%), 8–10 (79.3%), and 11+ (88.1%) fears ($\chi^2_3 = 26.7$, $p < .001$). The age-of-onset distributions for avoidance are very similar to those for fear, with earlier onsets and steeper slopes found for subgroups with more fears. The main difference is that, for all subgroups, the age of first avoidance (median = 12–14 years) is 1–2 years later than the age of first fear (median = 10–13 years).

Recovery distributions

Survival distributions for recovery (2+ years free of symptoms) show that recovery is most likely for social phobia involving 1–4 fears and is somewhat more rapid for subgroups with fewer fears ($\chi^2_3 = 8.1$, $p = .043$) (results not shown, but available on request). Nevertheless, the curves are similar in shape and slope and indicate that, regardless of number of fears,

recovery typically takes decades to occur. Only 20–40% of social phobia cases recover within 20 years of onset and only 40–60% recover within 40 years.

Comorbidity

Nearly two-thirds (62.9%) of respondents with lifetime social phobia involving 1–4 fears meet criteria for at least one other lifetime DSM-IV/CIDI disorder and the proportions are even higher for social phobia with 5–7 fears (75.2%), 8–10 fears (81.5%), and 11+ fears (90.2%). This dose-response pattern is clearest for comorbidity with other anxiety disorders and weakest for substance use disorders (detailed results available on request). Lifetime social phobia has a significantly elevated odds-ratio (OR) with every DSM-IV disorder assessed in the NCS-R. (Table 2) This pattern is not due to the confounding effect of time at risk, as the ORs were estimated in logistic regression equations that controlled for age in addition to sex and race-ethnicity. The ORs are highest with other anxiety disorders (3.9–11.9), lower with mood disorders (4.6–6.2), and lowest with impulse-control (2.8–4.4) and substance use (2.8–3.0) disorders. A statistically significant dose-response relationship exists between number of social fears and odds of most comorbid disorders.

Role impairment

Nearly all respondents (92.6%) with 12-month social phobia reported role impairment as a result of social anxiety, with more than one-third (36.5%) reporting severe impairment in at least one domain of functioning. (Table 3) As expected, the greatest impairment and clearest dose-response relationship with number of fears were found in the domains of social life and close relationships. Across role domains, the subgroup with 1–4 fears generally is least impaired while the subgroup with 11+ fears is most impaired. The greatest difference in impairment is typically between social phobia involving 1–4 versus 5+ fears.

To evaluate the independent impact of social phobia on impairment, analyses were replicated separately for 12-month pure (n = 197) and comorbid (n = 482) cases (detailed results available on request). The dose-response pattern was found to be weaker among pure cases. The proportion of cases reporting severe impairment was also lower among pure than comorbid cases, suggesting that the association between number of fears and impairment is partly explained by comorbidity. Nevertheless, 89.9% of pure cases reported at least some functional impairment in the last 12 months resulting from social phobia, especially in social life (82.4%) and close relationships (71.0%).

Socio-demographic correlates

Socio-demographic correlates of lifetime DSM-IV social phobia include being younger than 60, previously married, and having “other” employment status (mostly unemployed or disabled) (detailed results available on request). Being Hispanic or non-Hispanic Black is associated with reduced odds of social phobia. While all of these correlates are statistically significant, the ORs are fairly modest in magnitude (0.5–2.2). Furthermore, the association of each socio-demographic variable with social phobia varies significantly with number of fears. Social phobia involving 1–4 fears is more common among males and those of “other” race-ethnicity (mostly American Indian or Asian). In contrast, social phobia involving a larger number of fears is significantly related to being younger, female, neither Hispanic nor non-Hispanic Black, never or previously married, neither a student nor retired, having less than a college education, an “other” employment status, and low income. There are no consistent, meaningful differences in the socio-demographic correlates of pure and comorbid lifetime social phobia.

Treatment

Roughly two-thirds (68.9%) of respondents with lifetime social phobia reported receiving treatment for a mental health problem at some time in their lives. (Table 4) Only about one-third (35.2%) of lifetime cases, in comparison, reported ever receiving treatment specifically for social phobia. Respondents with 1–4 fears were seen about equally in general medical (38.8%) and mental health specialty (35.3%) settings, whereas those with 5+ fears were more often seen in mental health specialty (49.5–54.4%) than general medical (35.3–40.1%) settings. Number of fears is positively related to lifetime treatment. The proportions of lifetime cases that ever received treatment for any mental health problem (63.1–71.4%) and for social phobia (28.9–39.2%) increase monotonically across the 4 subgroups, although subgroup differences are fairly small in substantive terms. Subgroup differences are smaller for 12-month treatment and the association with number of lifetime fears is less clear.

When analyses are restricted to pure (non-comorbid) cases of social phobia, there is a significant inverse relationship between number of fears and social phobia-specific treatment (detailed results available on request). Among pure lifetime cases (n = 213), the highest proportion who ever received treatment for social phobia is found in the subgroup with 1–4 fears (25.9%) and decreases monotonically with 5–7 fears (16.6%), 8–10 fears (14.3%), and 11+ fears (8.4%). There is a similar decrease among pure 12-month cases (n = 197), with a sharp drop-off in 12-month social phobia treatment between the subgroup with 1–4 fears (15.9%) and all other subgroups (4.4–7.4%).

DISCUSSION

These results should be interpreted in the context of three notable limitations. First, social phobia was assessed by fully structured lay interviews. Although clinical reappraisal studies have found generally good agreement between CIDI and SCID DSM-IV diagnoses, there is a tendency for CIDI lifetime prevalence estimates—including the social phobia estimates—to be conservative relative to SCID-based estimates (Haro *et al.*, 2006). Had we applied the DSM-IV diagnostic hierarchy rules for social phobia, the CIDI prevalence estimates might be lower still. This suggests that the prevalence and societal burden of social phobia is underestimated by the CIDI results presented here. While clinical diagnoses provide an important benchmark and the modest concordance of SCID and CIDI diagnoses is clearly a limitation of the study, the SCID itself is neither perfectly reliable nor a “gold standard” measure of social phobia. For these reasons, CIDI-SCID concordance estimates might most appropriately be interpreted as lower-bound estimates of CIDI validity.

Second, respondents were administered the social phobia section if they reported at least one social fear that was excessive and associated with substantial anxiety or avoidance. This is in contrast to the baseline NCS, which required only that respondents report an “unreasonably strong” social fear to be assessed for social phobia, and thus identified more respondents as having social fears. As the NCS-R screening questions excluded people with milder social fears from further assessment, our estimates of the prevalence of social fears are likely to be underestimates. Third, reports concerning age of onset and lifetime symptoms and treatment were recalled retrospectively. Although a number of strategies were used to reduce recall errors in the NCS-R (Kessler and Ustun, 2004), they probably did not completely remove the differential recall accuracy likely to be associated with length of recall period.

Within the context of these limitations, the prevalence estimates of DSM-IV/CIDI social phobia (lifetime 12.1%, past-year 7.1%) are similar to the prevalence estimates of DSM-III-R social phobia reported a decade ago in the baseline NCS (lifetime 13.3%, past-year 7.9%) (Kessler *et al.*, 1994, Magee *et al.*, 1996), although higher than the prevalence estimates obtained in other recent epidemiological surveys (Alonso *et al.*, 2004, Grant *et al.*, 2005).

Unlike previous estimates, the NCS-R prevalence estimate was validated against clinician-administered SCID interviews, which found that independent clinicians arrive at a prevalence estimate slightly higher than the CIDI estimate. This raises the question why so many prior studies failed to detect the genuinely high proportion of the population with the disorder. Lower estimates in some studies than others (Alonso *et al.*, 2004, Andrews *et al.*, 2001, Bijl *et al.*, 1998, Davidson *et al.*, 1994, DeWit *et al.*, 1999, Grant *et al.*, 2005, Stein *et al.*, 1996, Stein *et al.*, 1994, Wittchen *et al.*, 1999) may have resulted from differences in methodology or assessment (e.g., variation in the number and kinds of social situations assessed or in the diagnostic system used) or may reflect genuine differences between countries or cultures in the prevalence of the disorder (Demyttenaere *et al.*, 2004). Clinical validation studies of the sort included in the NCS-R would be needed to adjudicate between these possibilities.

Interestingly, we found very few cases of social phobia involving just one or two fears. It is possible that the unusually broad range of social fears assessed in the survey enhanced detection of multiple fears in those who might otherwise have been misclassified as more “specific” cases. These different fears were strongly correlated in the total sample and the correlations fit a one-factor model in an exploratory factor analysis. A latent class analysis yielded further evidence of unidimensionality in that the four latent classes obtained were found to be largely nested: that is, successively higher classes were characterized by consistently higher conditional probabilities of virtually all social fears. These findings replicate a latent class analysis performed in the NCS (Kessler *et al.*, 1998) which also found nested latent classes distinguished by number of social fears. Like other community surveys (Furmark *et al.*, 2000; Stein *et al.*, 2000), these results offer little evidence for distinct fear profiles, such as those that have been hypothesized in the literature to involve performance versus interactional situations (Hook and Valentiner, 2002, Turner *et al.*, 1992). Although analyses of some clinical samples have found multiple factors underlying social fears, the number and content of the factors has varied considerably across studies (e.g., Baker *et al.*, 2002; Safren *et al.*, 1999). Future efforts to reconcile these findings ideally will be carried out in community as well as clinical samples, using a range of measures, to provide a clearer structural picture that is independent of instrumentation, setting, and selection effects.

The current study extends previous findings on comorbidity in social phobia (Goodwin and Hamilton, 2003, Jensen *et al.*, 2001, Kessler *et al.*, 1994, Kessler *et al.*, 1999, Magee *et al.*, 1996, Sareen *et al.*, 2001, Sareen *et al.*, 2006, Sareen *et al.*, 2004, Sonntag *et al.*, 2000) by including a wider range of comorbid conditions and by documenting a significant association of comorbidity with number of social fears. The associations between social phobia and other anxiety, mood, substance use, and impulse-control disorders may be explained in a number of ways (Kraemer *et al.*, 2001). Social phobia, which so often has its onset in childhood and therefore precedes most other disorders with which it is comorbid, may be a direct or indirect risk factor for other mental disorders. The few prospective studies that have examined this issue have tended to find that social phobia is a predictor of later-onset depression (Bittner *et al.*, 2004; Stein *et al.*, 2001) and substance use (Zimmermann *et al.*, 2003). An alternative possibility is that other early-onset mental disorders, such as ADHD or oppositional-defiant disorder, may increase the likelihood of developing social phobia as well as later disorders. Finally, common causes such as temperament (Kagan *et al.*, 1988, Rosenbaum *et al.*, 1993, Stein, 1998), personality (Cox *et al.*, 2004, Hettema *et al.*, 2006), genetic (Kendler *et al.*, 1992, Stein *et al.*, 1998), or environmental (Chartier *et al.*, 2001, Kessler *et al.*, 1997, Lieb *et al.*, 2000) factors may predispose individuals both to social phobiaand to other mental disorders. A shared vulnerability factor of low positive affect (Brown *et al.*, 1998), for example, may help explain the extensive comorbidity of social phobia with unipolar mood disorders in the present sample and in clinical samples (Brown *et al.*, 2001). There is a need for prospective studies to clarify the associations of social phobia with other disorders and to account for the observed dose-response relationship between number of social fears and the extent of

comorbidity. Studies are also needed to determine whether early intervention for social anxiety might prevent the onset of comorbid conditions related to primary social phobia (Kendall and Kessler, 2002).

As the majority of people with social phobia have comorbid disorders, it can be asked whether social phobia uniquely contributes to functional impairment. This question is reflected in suggestions by some commentators that social phobia is not associated with "harmful dysfunction" and therefore is not a mental disorder at all (Wakefield *et al.*, 2005). That particular argument—which has been hotly debated (Campbell-Sills and Stein, 2005)—is especially relevant to diagnosable cases with just one or a few social fears, as they fall nearest to the diagnostic threshold and appear less impaired than those with more pervasive fears (Heimberg *et al.*, 1990, Kessler *et al.*, 1998). To help address this issue, the current survey used the Sheehan Disability Scales to assess the impairment caused by social phobia across several domains of functioning. We found that social phobia, even in the absence of comorbid conditions, is associated with significantly elevated impairment in multiple domains. Importantly, this holds true for social phobia limited to 1–4 fears, underscoring the significance of even these most circumscribed social phobia cases.

At the same time, consistent with previous research (Stein *et al.*, 2000), we found a dose-response relationship between number of social fears and degree of functional impairment. This finding is noteworthy when one considers that pure social phobia cases involving a larger number of fears were less likely to receive treatment specifically for this disorder. Together, these data suggest that people who have the greatest need for social phobia treatment are those least likely to receive it. A possible explanation for these results is that individuals with multiple social fears may be more likely to view social anxiety symptoms as untreatable parts of their personality (i.e., shyness; Bruch *et al.*, 1995) than those with a limited number of fears. Another explanation is that these individuals may avoid seeking treatment for emotional problems due to fears of negative evaluation by care providers. This latter possibility is contradicted, however, by our finding that most respondents with social phobia had utilized non-social-phobia-specific mental health services. This finding implies that health care providers may be missing opportunities to treat social phobia. Careful screening for social phobia among patients presenting with mood, substance use, and impulse-control disorders not only may lead to better detection and treatment of social phobia, but may facilitate treatment of the comorbid disorders.

In conclusion, the current study provides nationally representative data on the prevalence and correlates of social fears and social phobia in the US. Results are largely consistent with previous epidemiological studies demonstrating that social phobia is prevalent in the community, comorbid with other mental disorders, and often not treated. Important novel findings include the demonstration that social phobia, even in the non-comorbid form, is associated with functional impairment; that social phobia is a unidimensional construct with a dose-response relationship between number of fears and degree of impairment; and that there is a an inverse relationship between the severity of social phobia and the likelihood of receiving social phobia-specific treatment.

Acknowledgements

Preparation of this article was supported by National Institute of Mental Health Career Development Award K01-MH076162 (Ruscio) and by a Canadian Institutes of Health Research New Investigator grant (Sareen).

The National Comorbidity Survey Replication (NCS-R) is supported by NIMH (U01-MH60220) with supplemental support from the National Institute on Drug Abuse (NIDA), the Substance Abuse and Mental Health Services Administration (SAMHSA), the Robert Wood Johnson Foundation (RWJF; Grant 044780), and the John W. Alden Trust. Collaborating NCS-R investigators include Ronald C. Kessler (Principal Investigator, Harvard Medical School), Kathleen Merikangas (Co-Principal Investigator, NIMH), James Anthony (Michigan State University), William Eaton (The Johns Hopkins University), Meyer Glantz (NIDA), Doreen Koretz (Harvard University), Jane McLeod (Indiana University), Mark Olfson (New York State Psychiatric Institute, College of Physicians and Surgeons of Columbia

University), Harold Pincus (University of Pittsburgh), Greg Simon (Group Health Cooperative), Michael Von Korff (Group Health Cooperative), Philip Wang (Harvard Medical School), Kenneth Wells (UCLA), Elaine Wethington (Cornell University), and Hans-Ulrich Wittchen (Max Planck Institute of Psychiatry; Technical University of Dresden). The views and opinions expressed in this report are those of the authors and should not be construed to represent the views of any of the sponsoring organizations, agencies, or U.S. Government. A complete list of NCS publications and the full text of all NCS-R instruments can be found at http://www.hcp.med.harvard.edu/ncs. Send correspondence to ncs@hcp.med.harvard.edu.

The NCS-R is carried out in conjunction with the World Health Organization World Mental Health (WMH) Survey Initiative. We thank the staff of the WMH Data Collection and Data Analysis Coordination Centres for assistance with instrumentation, fieldwork, and consultation on data analysis. These activities were supported by the National Institute of Mental Health (R01 MH070884), the John D. and Catherine T. MacArthur Foundation, the Pfizer Foundation, the US Public Health Service (R13-MH066849, R01-MH069864, and R01 DA016558), the Fogarty International Center (FIRCA R03-TW006481), the Pan American Health Organization, Eli Lilly and Company, Ortho-McNeil Pharmaceutical, Inc., GlaxoSmithKline, and Bristol-Myers Squibb. A complete list of WMH publications can be found at http://www.hcp.med.harvard.edu/wmh/.

References

Alonso J, Angermeyer MC, Bernert S, Bruffaerts R, Brugha TS, Bryson H, de Girolamo G, Graaf R, Demyttenaere K, Gasquet I, Haro JM, Katz SJ, Kessler RC, Kovess V, Lepine JP, Ormel J, Polidori G, Russo LJ, Vilagut G, Almanza J, Arbabzadeh-Bouchez S, Autonell J, Bernal M, Buist-Bouwman MA, Codony M, Domingo-Salvany A, Ferrer M, Joo SS, Martinez-Alonso M, Matschinger H, Mazzi F, Morgan Z, Morosini P, Palacin C, Romera B, Taub N, Vollebergh WA. Prevalence of mental disorders in Europe: Results from the European Study of the Epidemiology of Mental Disorders (ESEMeD) project. Acta Psychiatrica Scandinavica Supplement 2004;420:21–27.

American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders. 4. Author: Washington, DC; 1994.

Andrews G, Henderson S, Hall W. Prevalence, comorbidity, disability and service utilization: Overview of the Australian National Mental Health Survey. British Journal of Psychiatry 2001;178:145–153. [PubMed: 11157427]

Baker SL, Heinrichs N, Kim HJ, Hofmann SG. The Liebowitz social anxiety scale as a self-report instrument: a preliminary psychometric analysis. Behaviour Research and Therapy 2002;40:701–715. [PubMed: 12051488]

Bijl RV, van Zessen G, Ravelli A. Prevalence of psychiatric disorder in the general population: Results of the Netherlands Mental Health Survey and Incidence Study (NEMESIS). Social Psychiatry and Psychiatric Epidemiology 1998;33:587–595. [PubMed: 9857791]

Bittner A, Goodwin RD, Wittchen HU, Beesdo K, Höfler M, Lieb R. What characteristics of primary anxiety disorders predict subsequent major depressive disorder? Journal of Clinical Psychiatry 2004;65:618–626. [PubMed: 15163247]

Brown TA, Campbell LA, Lehman CL, Grisham JR, Mancill RB. Current and lifetime comorbidity of the DSM-IV anxiety and mood disorders in a large clinical sample. Journal of Abnormal Psychology 2001;110:49–58. [PubMed: 11261399]

Brown TA, Chorpita BF, Barlow DH. Structural relationships among dimensions of the DSM-IV anxiety and mood disorders and dimensions of negative affect, positive affect, and autonomic arousal. Journal of Abnormal Psychology 1998;107:179–192. [PubMed: 9604548]

Bruch MA, Hamer RJ, Heimberg RG. Shyness and public self-consciousness: additive or interactive relation with social interaction? Journal of Personality 1995;63:47–63. [PubMed: 7722850]

Burnham, KP.; Anderson, D. Model Selection and Inference. Springer: New York, NY; 1998.

Campbell-Sills L, Stein MB. Justifying the diagnostic status of social phobia: a reply to Wakefield, Horwitz, and Schmitz. Canadian Journal of Psychiatry 2005;50:320–323.

Chartier MJ, Walker JR, Stein MB. Social phobia and potential childhood risk factors in a community sample. Psychological Medicine 2001;31:307–315. [PubMed: 11232917]

Coles, ME.; Horng, B. Social anxiety disorder. In: Andrasik, F., editor. Comprehensive handbook of personality and psychopathology: Vol. 2. Adult psychopathology. Wiley: Hoboken, NJ; 2006. p. 138-153.

Cox BJ, Fleet C, Stein MB. Self-criticism and social phobia in the US national comorbidity survey. Journal of Affective Disorders 2004;82:227–234. [PubMed: 15488251]

Davidson JR, Hughes DC, George LK, Blazer DG. The boundary of social phobia: Exploring the threshold. Archives of General Psychiatry 1994;51:975–983. [PubMed: 7979886]

Demyttenaere K, Bruffaerts R, Posada-Villa J, Gasquet I, Kovess V, Lepine JP, Angermeyer MC, Bernert S, de Girolamo G, Morosini P, Polidori G, Kikkawa T, Kawakami N, Ono Y, Takeshima T, Uda H, Karam EG, Fayyad JA, Karam AN, Mneimneh ZN, Medina-Mora ME, Borges G, Lara C, de Graaf R, Ormel J, Gureje O, Shen Y, Huang Y, Zhang M, Alonso J, Haro JM, Vilagut G, Bromet EJ, Gluzman S, Webb C, Kessler RC, Merikangas KR, Anthony JC, Von Korff MR, Wang PS, Brugha TS, Aguilar-Gaxiola S, Lee S, Heeringa S, Pennell BE, Zaslavsky AM, Ustun TB, Chatterji S. Prevalence, severity, and unmet need for treatment of mental disorders in the World Health Organization World Mental Health Surveys. JAMA 2004;291:2581–2590. [PubMed: 15173149]

DeWit DJ, Ogborne A, Offord DR, MacDonald K. Antecedents of the risk of recovery from DSM-III-R social phobia. Psychological Medicine 1999;29:569–582. [PubMed: 10405078]

First, MB.; Spitzer, RL.; Gibbon, M.; Williams, JBW. Structured Clinical Interview for DSM-IV axis I disorders, research version, non-patient edition (SCID-I/NP). Biometrics Research, New York State Psychiatric Institute: New York, NY; 2002.

Furmark T, Tillfors M, Everz PO, Marteinsdottir I, Gefvret O, Fredrikson M. Social phobia in the general population, prevalence and sociodemographic profile. Social Psychiatry and Psychiatric Epidemiology 1999;34:416–424. [PubMed: 10501711]

Furmark T, Tillfors M, Stattin H, Ekselius L, Fredrikson M. Social phobia subtypes in the general population revelaed by cluster analysis. Psychological Medicine 2000;30:1335–1344. [PubMed: 11097074]

Goodman, LA. Latent class analysis: The empirical study of latent types, latent variables, and latent structures. In: Hagenaars, JA.; McCutcheon, AL., editors. Applied Latent Class Analysis. Cambridge University Press: New York, NY; 2002. p. 3-55.

Goodwin RD, Hamilton SP. Lifetime comorbidity of antisocial personality disorder and anxiety disorders among adults in the community. Psychiatry Research 2003;117:159–166. [PubMed: 12606017]

Grant BF, Hasin DS, Blanco C, Stinson FS, Chou SP, Goldstein RB, Dawson DA, Smith S, Saha TD, Huang B. The epidemiology of social anxiety disorder in the United States: results from the National Epidemiologic Survey on Alcohol and Related Conditions. Journal of Clinical Psychiatry 2005;66:1351–1361. [PubMed: 16420070]

Halli, SS.; Rao, VK. Advanced techniques of population analysis. Plenum Press: New York, NY; 1992.

Haro JM, Arbabzadeh-Bouchez S, Brugha TS, De Girolamo G, Guyer ME, Jin R, Lepine JP, Mazzi F, Reneses B, Vilagut G, Sampson NA, Kessler RC. Concordance of the Composite International Diagnostic Interview Version 3.0 (CIDI 3.0) with standardized clinical assessments in the WHO World Mental Health Surveys. International Journal of Methods in Psychiatric Research 2006;15:167–180. [PubMed: 17266013]

Hayward C, Killen JD, Kraemer HC, Taylor CB. Linking self-reported childhood behavioral inhibition to adolescent social phobia. Journal of the American Academy of Child and Adolescent Psychiatry 1998;37:1308–1316. [PubMed: 9847504]

Heimberg RG, Holt CS, Schneier FR, Spitzer RL, Liebowitz MR. The issue of subtypes in the diagnosis of social phobia. Journal of Anxiety Disorders 1993;7:249–269.

Heimberg RG, Hope DA, Dodge CS, Becker RE. The issue of subtypes in the diagnosis of social phobia. Journal of Anxiety Disorders 1990;178:249–269.

Heimberg, RG.; Liebowitz, MR.; Hope, DA.; Schneier, FR. Social phobia: Diagnosis, assessment, and treatment. Guilford: New York, NY; 1995.

Hettema JM, Neale MC, Myers JM, Prescott CA, Kendler KS. A population-based twin study of the relationship between neuroticism and internalizing disorders. American Journal of Psychiatry 2006;163:857–864. [PubMed: 16648327]

Hofmann SG, Heinrichs N, Moscovitch DA. The nature and expression of social phobia: toward a new classification. Clinical Psychological Review 2004;24:769–797.

Hook JN, Valentiner DP. Are specific and generalized social phobias qualitatively distinct? Clinical Psychology and Science Practice 2002;9:379–395.

Jensen PS, Hinshaw SP, Kraemer HC, Lenora N, Newcorn JH, Abikoff HB, March JS, Arnold LE, Cantwell DP, Conners CK, Elliott GR, Greenhill LL, Hechtman L, Hoza B, Pelham WE, Severe JB, Swanson JM, Wells KC, Wigal T, Vitiello B. ADHD comorbidity findings from the MTA study: comparing comorbid subgroups. Journal of the American Academy of Child and Adolescent Psychiatry 2001;40:147–158. [PubMed: 11211363]

Kagan J, Reznick JS, Snidman N. Biological basis of childhood shyness. Science 1988;240:167–171. [PubMed: 3353713]

Kendall PC, Kessler RC. The impact of childhood psychopathology interventions on subsequent substance abuse: Policy implications, comments, and recommendations. Journal of Consulting and Clinical Psychology 2002;70:1303–1306. [PubMed: 12472302]

Kendler KS, Neale MC, Kessler RC, Heath AC, Eaves LJ. The genetic epidemiology of phobias in women: The interrelationship of agoraphobia, social phobia, situational phobia, and simple phobia. Archives of General Psychiatry 1992;49:273–281. [PubMed: 1558461]

Kessler RC, Abelson J, Demler O, Escobar JI, Gibbon M, Guyer ME, Howes MJ, Jin R, Vega WA, Walters EE, Wang P, Zaslavsky A, Zheng H. Clinical calibration of DSM-IV diagnoses in the World Mental Health (WMH) version of the World Health Organization (WHO) Composite International Diagnostic Interview (WMHCIDI). International Journal of Methods in Psychiatric Research 2004;13:122–139. [PubMed: 15297907]

Kessler RC, Berglund P, Demler O, Jin R, Walters EE. Lifetime prevalence and age-of-onset distributions of DSM-IV disorders in the National Comorbidity Survey Replication. Archives of General Psychiatry 2005;62:593–602. [PubMed: 15939837]

Kessler RC, Chiu WT, Demler O, Walters EE. Prevalence, severity, and comorbidity of 12-month *DSM-IV*disorders in the National Comorbidity Survey Replication. Archives of General Psychiatry 2005;62:617–627. [PubMed: 15939839]

Kessler RC, Davis CG, Kendler KS. Childhood adversity and adult psychiatric disorders in the US National Comorbidity Survey. Psychological Medicine 1997;27:1101–1119. [PubMed: 9300515]

Kessler RC, McGonagle KA, Zhao S, Nelson CB, Hughes M, Eshleman S, Wittchen HU, Kendler KS. Lifetime and 12-month prevalence of DSM-III-R psychiatric disorders in the United States. Results from the National Comorbidity Survey. Archives of General Psychiatry 1994;51:8–19. [PubMed: 8279933]

Kessler RC, Merikangas KR. The National Comorbidity Survey Replication (NCS-R): Background and aims. International Journal of Methods in Psychiatric Research 2004;13:60–68. [PubMed: 15297904]

Kessler RC, Stang P, Wittchen HU, Stein MB, Walters EE. Lifetime co-morbidities between social phobia and mood disorders in the US National Comorbidity Survey. Psychological Medicine 1999;29:555–567. [PubMed: 10405077]

Kessler RC, Stein MB, Berglund PA. Social phobia subtypes in the National Comorbidity Survey. American Journal of Psychiatry 1998;155:613–619. [PubMed: 9585711]

Kessler RC, Ustun TB. The World Mental Health (WMH) Survey Initiative Version of the World Health Organization (WHO) Composite International Diagnostic Interview (CIDI). International Journal of Methods in Psychiatric Research 2004;13:93–121. [PubMed: 15297906]

Kraemer HC, Stice E, Kazdin A, Offord DR, Kupfer D. How do risk factors work together? Mediators, moderators, independent, overlapping, and proxy risk factors. American Journal of Psychiatry 2001;158:848–856. [PubMed: 11384888]

Leon AC, Portera L, Olfson M, Weissman MM, Kathol RG, Farber L, Sheehan DV, Pleil AM. False positive results: A challenge for psychiatric screening in primary care. American Journal of Psychiatry 1997;154:1462–1464. [PubMed: 9326835]

Lieb R, Wittchen HU, Hofler M, Fuetsch M, Stein MB, Merikangas KR. Parental psychopathology, parenting styles, and the risk of social phobia in offspring: A prospective-longitudinal community study. Archives of General Psychiatry 2000;57:859–866. [PubMed: 10986549]

Magee W, Eaton W, Wittchen H, McGonagle KA, Kessler RC. Agoraphobia, simple phobia, and social phobia in the National Comorbidity Survey. Archives of General Psychiatry 1996;53:159–168. [PubMed: 8629891]

Mineka S, Watson D, Clark LA. Comorbidity of anxiety and unipolar mood disorders. Annual Review of Psychology 1998;49:377–412.

Numerical Approximation Group. Nag FORTRAN Library Introductory Guide. Downers Grove, Ill: Nag Inc; 1990.

Research Triangle Institute. SUDAAN: Professional Software for Survey Data Analysis [computer program]. Research Triangle Institute; Research Triangle Park, NC: 2002.

Rosenbaum JF, Biederman J, Bolduc-Murphy EA, Faraone SV, Chaloff J, Hirshfeld DR, Kagan J. Behavioral inhibition in childhood: A risk factor for anxiety disorders. Harvard Review of Psychiatry 1993;1:2–16. [PubMed: 9384823]

Safren SA, Heimberg RG, Horner KJ, Juster HR, Schneier FR, Liebowitz MR. Factor structure of social fears: The Liebowitz Social Anxiety Scale. Journal of Anxiety Disorders 1999;13:253–270. [PubMed: 10372341]

Sareen J, Chartier MJ, Kjernisted KD, Stein MB. Comorbidity of phobic disorders with alcoholism in a Canadian community sample. Canadian Journal of Psychiatry 2001;46:679–686.

Sareen J, Chartier MJ, Paulus MP, Stein MB. Illicit drug use and anxiety disorders: findings from two community surveys. Psychiatry Research 2006;142:11–17. [PubMed: 16712953]

Sareen J, Stein MB, Cox BJ, Hassard ST. Understanding comorbidity of anxiety disorders and antisocial behavior: Findings from two large community surveys. Journal of Nervous and Mental Disease 2004;192:178–186. [PubMed: 15091298]

Schneier FR, Johnson J, Hornig CD, Liebowitz MR, Weissman MM. Social phobia: comorbidity and morbidity in an epidemiologic sample. Archives of General Psychiatry 1992;49:282–288. [PubMed: 1558462]

Sonntag H, Wittchen HU, Hofler M, Kessler RC, Stein MB. Are social fears and DSM-IV social anxiety disorder associated with smoking and nicotine dependence in adolescents and young adults? European Psychiatry 2000;15:67–74. [PubMed: 10713804]

Stein MB, Fuetsch M, Muller N, Hofler M, Lieb R, Wittchen HU. Social anxiety disorder and the risk of depression: A prospective community study of adolescents and young adults. Archives of General Psychiatry 2001;58:251–256. [PubMed: 11231832]

Stein MB, Torgrud LJ, Walker JR. Social phobia symptoms, subtypes, and severity: Findings from a community survey. Archives of General Psychiatry 2000;57:1046–1052. [PubMed: 11074870]

Stein MB, Walker J, Forde D. Public-speaking fears in a community sample: Prevalence, impact on functioning, and diagnostic classification. Archives of General Psychiatry 1996;53:169–174. [PubMed: 8629892]

Stein MB. Neurobiological perspectives on social phobia: From affiliation to zoology. Biological Psychiatry 1998;44:1277–1285. [PubMed: 9861470]

Stein MB, Chartier MJ, Hazen AL, Kozak MV, Tancer ME, Lander S, Furer P, Chubaty D, Walker JR. A direct-interview family study of generalized social phobia. American Journal of Psychiatry 1998;155:90–97. [PubMed: 9433344]

Stein MB, Walker JR, Forde DR. Setting diagnostic thresholds for social phobia: Considerations from a community survey of social anxiety. American Journal of Psychiatry 1994;151:408–412. [PubMed: 8109650]

Tarrier NE. Social phobia and social anxiety [Special issue]. Clinical Psychological Review 2004:24.

Turner SM, Beidel DC, Townsley RM. Social phobia: a comparison of specific and generalized subtypes and avoidant personality disorder. Journal of Abnormal Psychology 1992;101:326–331. [PubMed: 1583227]

Turner SM, Beidel DC, Wolff PL. Is behavioral inhibition related to the anxiety disorders? Clinical Psychological Review 1996;16:157–172.

Wakefield JC, Horwitz AV, Schmitz MF. Are we overpathologizing the socially anxious? Social phobia from a harmful dysfunction perspective. Canadian Journal of Psychiatry 2005;50:317–319.

Weissman MM, Bland RC, Canino GJ, Greenwald S, Lee CK, Newman SC, Rubio-Stipec M, Wickramaratne PJ. The cross-national epidemiology of social phobia: A preliminary report. International Clinical Psychopharmacology 1996;11:9–14. [PubMed: 8923104]

Wittchen HU, Stein MB, Kessler RC. Social fears and social phobia in a community sample of adolescents and young adults: Prevalence, risk factors and co-morbidity. Psychological Medicine 1999;29:309–323. [PubMed: 10218923]

Wolter, KM. Introduction to Variance Estimation. Springer-Verlag; New York: 1985.

Zimmermann P, Wittchen HU, Hofler M, Pfister H, Kessler RC, Lieb R. Primary anxiety disorders and the development of subsequent alcohol use disorders: a 4-year community study of adolescents and young adults. Psychological Medicine 2003;30:1211–1222. [PubMed: 14580076]

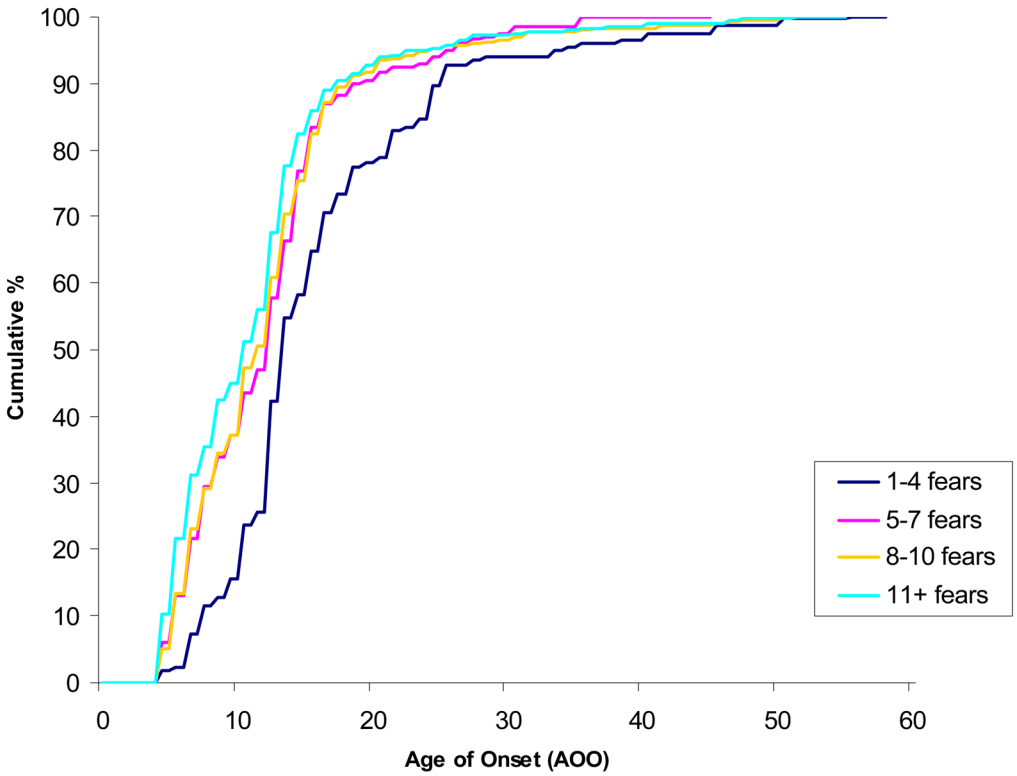

Figure 1.

Age of Onset of First Social Fear in Four Mutually Exclusive Social Phobia Subgroups Involving Different Numbers of Social Fears

Cumulative age-of-onset distributions estimated in the sub-sample of respondents with lifetime social phobia. The distributions differ significantly across the four social phobia subgroups ($\chi^2_3 = 27.4$, $p < .001$).

Table 1

Lifetime Prevalence of Social Fears and DSM-IV Social Phobia (n = 9282)

	Prevalence of each fear in the total sample		Prevalence of lifetime SO among respondents with each fear		Prevalence of lifetime SO involving each fear in the total sample[1]		Prevalence of each fear among respondents with lifetime SO[2]	
	%	(se)	%	(se)	%	(se)	%	(se)
I. Types of social fears[3]								
Meeting new people	16.8	(0.5)	58.1	(1.9)	9.7	(0.4)	80.5	(1.3)
Talking to people in authority	14.7	(0.4)	59.3	(1.8)	8.7	(0.4)	72.3	(1.4)
Speaking up in meeting/class	19.5	(0.5)	52.9	(1.6)	10.3	(0.4)	85.3	(1.1)
Going to parties	13.4	(0.4)	61.1	(1.7)	8.2	(0.3)	67.6	(1.4)
Public speaking/performance	21.2	(0.5)	50.6	(1.5)	10.7	(0.4)	88.7	(1.0)
Important exam/interview	14.0	(0.4)	58.4	(1.7)	8.2	(0.3)	67.5	(1.8)
Working while being watched	11.8	(0.4)	61.1	(2.6)	7.2	(0.3)	59.4	(1.5)
Entering an occupied room	11.9	(0.4)	62.0	(2.1)	7.4	(0.3)	61.1	(1.7)
Talking with strangers	13.1	(0.4)	61.5	(1.7)	8.1	(0.3)	66.7	(1.7)
Expressing disagreement	12.4	(0.4)	58.6	(1.6)	7.3	(0.3)	60.2	(1.3)
Writing/eating/drinking while being watched	8.1	(0.3)	65.6	(1.8)	5.3	(0.3)	43.9	(1.9)
Using public bathroom	5.7	(0.2)	59.4	(3.0)	3.4	(0.2)	28.1	(1.5)
Dating situation	11.5	(0.4)	63.9	(2.2)	7.3	(0.3)	60.6	(1.6)
Other performance or interactional fear	15.7	(0.5)	58.6	(1.9)	9.2	(0.4)	76.0	(1.8)
Any of the above fears	24.1	(0.6)	50.2	(1.5)	12.1	(0.4)	100.0	(0.0)
II. Number of social fears								
Exactly 1 fear	0.7	(0.1)	12.0	(5.4)	0.1	(0.0)	0.7	(0.3)
Exactly 2 fears	1.4	(0.1)	23.8	(4.6)	0.3	(0.1)	2.7	(0.6)
Exactly 3 fears	1.6	(0.2)	20.2	(3.9)	0.3	(0.1)	2.6	(0.5)
Exactly 4 fears	1.6	(0.2)	39.4	(4.3)	0.6	(0.1)	5.2	(0.8)
Exactly 5 fears	1.6	(0.1)	33.9	(4.8)	0.5	(0.1)	4.5	(0.6)
Exactly 6 fears	1.8	(0.1)	39.4	(4.1)	0.7	(0.1)	5.9	(0.6)
Exactly 7 fears	2.1	(0.2)	43.0	(3.3)	0.9	(0.1)	7.4	(0.7)
Exactly 8 fears	2.2	(0.2)	55.7	(4.2)	1.2	(0.1)	10.3	(0.9)
Exactly 9 fears	2.0	(0.1)	55.8	(4.1)	1.1	(0.1)	9.4	(0.8)
Exactly 10 fears	2.5	(0.2)	55.3	(4.1)	1.4	(0.1)	11.4	(1.0)
Exactly 11 fears	2.0	(0.2)	68.4	(3.6)	1.4	(0.1)	11.4	(1.1)
Exactly 12 fears	1.7	(0.1)	70.0	(4.6)	1.2	(0.1)	10.1	(1.0)
Exactly 13 fears	1.7	(0.1)	80.0	(3.4)	1.3	(0.1)	11.1	(1.0)
Exactly 14 fears	1.1	(0.1)	78.4	(6.4)	0.9	(0.1)	7.3	(0.9)

Abbreviation: SO, social phobia.

[1] Percentages in this column equal the product of the percentages in the preceding two columns. For example, 9.7% of respondents in the Part I sample have a lifetime history of social phobia involving a fear of meeting new people.

[2] n = 1143.

[3] Social fears assessed included both interactional fears (meeting new people, talking to people in authority, going to parties, entering an occupied room, talking with strangers, expressing disagreement, dating situation) and performance fears (speaking up in meeting/class, public speaking/performance, important exam/interview, working while being watched, writing/eating/drinking while being watched, using public bathroom).

Table 2

Lifetime Comorbidity (OR)[1] of Social Phobia and Four Mutually Exclusive Social Phobia Subgroups with Other DSM-IV Disorders

	Social Phobia										
	All Social Phobia		with 1–4 fears		with 5–7 fears		with 8–10 fears		with 11+ fears		
	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)	OR	(95% CI)	χ^2_3
Anxiety disorder											
Panic disorder	4.9*	(4.0–6.0)	3.0*	(1.4–6.2)	3.4*	(2.1–5.5)	3.8*	(2.7–5.3)	7.0*	(5.0–9.8)	12.3**
Agoraphobia without panic	11.9*	(6.8–21.0)	0.8	(0.1–6.7)	5.3*	(1.8–15.7)	8.3*	(4.2–16.5)	22.2*	(12.3–40.1)	26.0**
Specific phobia	5.4*	(4.5–6.5)	3.3*	(2.0–5.3)	4.2*	(3.1–5.7)	5.2*	(3.8–7.1)	6.9*	(5.1–9.2)	7.0
Generalized anxiety disorder	5.2*	(4.2–6.4)	3.7*	(2.3–6.2)	4.6*	(3.2–6.5)	3.8*	(2.7–5.2)	7.2*	(5.3–9.7)	13.5**
Post-traumatic stress disorder[2]	3.9*	(3.1–4.9)	2.5*	(1.4–4.3)	3.0*	(1.8–5.1)	3.1*	(2.2–4.4)	5.3*	(4.0–7.1)	17.2**
Separation anxiety disorder[2]	4.0*	(3.3–4.8)	0.9	(0.4–2.1)	3.1*	(1.9–5.1)	3.8*	(2.6–5.5)	5.7*	(4.8–6.8)	25.9**
Any anxiety disorder[2]	5.9*	(4.8–7.4)	3.1*	(1.8–5.1)	4.5*	(3.3–6.1)	5.6*	(4.4–7.2)	9.1*	(6.1–13.6)	15.8**
Mood disorder											
Major depressive disorder	4.6*	(3.9–5.4)	3.1*	(2.0–4.8)	2.9*	(2.1–4.1)	4.5*	(3.6–5.7)	6.4*	(4.9–8.3)	30.9**
Dysthymia	6.2*	(5.0–7.6)	4.0*	(2.2–7.2)	3.2*	(1.9–5.6)	5.3*	(3.6–7.8)	8.8*	(6.9–11.3)	19.6**
Bipolar disorder (broad)	4.6*	(3.5–6.0)	3.0*	(1.4–6.7)	3.1*	(1.7–5.6)	3.5*	(2.2–5.5)	6.8*	(5.0–9.2)	11.3**
Any mood disorder	4.8*	(4.1–5.6)	3.2*	(2.1–5.0)	3.0*	(2.2–4.2)	4.6*	(3.5–5.9)	7.0*	(5.3–9.3)	28.5**
Impulse-control disorder											
Oppositional-defiant disorder[3]	3.4*	(2.6–4.6)	0.6	(0.2–2.3)	2.3*	(1.5–3.6)	4.1*	(2.8–6.1)	4.3*	(3.1–6.1)	20.2**
Conduct disorder[3]	2.8*	(2.2–3.6)	1.0	(0.3–3.1)	2.0*	(1.1–3.7)	3.1*	(2.0–5.1)	3.4*	(2.3–5.0)	9.2**
Attention-deficit/ hyperactivity disorder[3]	4.4*	(3.2–6.0)	1.0	(0.3–3.3)	2.2*	(1.3–3.9)	3.8*	(2.1–7.0)	7.5*	(4.8–11.5)	18.4**
Intermittent explosive disorder	3.5*	(2.9–4.3)	3.3*	(1.8–6.2)	2.3*	(1.4–3.9)	3.0*	(2.2–4.1)	4.8*	(3.7–6.3)	11.1**
Any impulse-control disorder[3]	3.7*	(3.0–4.6)	1.3	(0.7–2.3)	2.5*	(1.7–3.7)	3.3*	(2.3–4.7)	6.2*	(4.5–8.5)	30.7**
Substance use disorder											
Alcohol abuse or dependence[2]	2.8*	(2.3–3.3)	1.6	(0.8–3.0)	3.2*	(2.1–4.6)	2.8*	(2.1–3.7)	3.0*	(2.4–3.9)	4.7
Drug abuse or dependence[2]	3.0*	(2.5–3.7)	1.9	(0.9–4.0)	2.9*	(1.8–4.5)	3.3*	(2.3–4.5)	3.2*	(2.4–4.3)	2.0
Any substance use disorder[2]	2.8*	(2.3–3.3)	1.6	(0.9–2.9)	2.8*	(1.9–4.1)	2.8*	(2.2–3.7)	3.2*	(2.5–4.1)	5.6
Any disorder[2]	6.1*	(5.0–7.5)	2.7*	(1.7–4.3)	4.3*	(2.7–6.6)	6.0*	(4.5–8.0)	12.0*	(7.8–18.4)	24.9**
Exactly 1 comorbid disorder[2]	2.6*	(2.0–3.5)	1.8	(1.0–3.2)	2.0*	(1.1–3.7)	3.1*	(2.3–4.3)	3.4*	(2.0–6.0)	4.2
Exactly 2 comorbid disorders[2]	4.9*	(3.8–6.3)	3.9*	(2.0–7.8)	3.2*	(1.8–5.7)	5.1*	(3.2–8.3)	7.2*	(4.4–12.0)	5.6
3 or more comorbid disorders[2]	12.3*	(9.7–15.5)	2.8*	(1.7–4.9)	8.1*	(4.7–13.8)	10.9*	(7.7–15.5)	28.6*	(18.2–45.1)	53.7**
(n)	(1143)		(118)		(213)		(354)		(458)		

*Significant at the .05 level, two-sided test.

**Significant difference between the four mutually exclusive social phobia subgroups at the .05 level.

[1]The odds-ratios (ORs) were estimated in logistic regression models controlling for age at interview, sex, and race-ethnicity. The ORs compare respondents in each group with respondents who have no lifetime history of social phobia. The 3 degrees of freedom χ^2 test compares social phobia subgroups involving 1–4 (n = 118), 5–7 (n = 213), 8–10 (n = 354), and 11+ (n = 458) fears, indicating whether the association of social phobia with each disorder varies significantly by number of fears. All disorders were defined using DSM-IV criteria without observing hierarchical exclusion rules.

[2]Assessed in the Part II sample (n = 5692).

[3]Restricted to Part II respondents ages 18–44 (n = 3197).

Table 3

Role Impairment[1] in 12-month Social Phobia and Four Mutually Exclusive Social Phobia Subgroups

	All 12-month Social Phobia		12-month Social Phobia with 1–4 fears		with 5–7 fears		with 8–10 fears		with 11+ fears		
	%	(se)	%	(se)	%	(se)	%	(se)	%	(se)	χ^2_3
I. Severe Impairment[2]											
Home	10.9	(1.2)	8.7	(3.8)	2.6	(1.0)	10.1	(2.2)	15.0	(1.9)	22.5*
Work	15.4	(1.4)	13.4	(4.0)	12.7	(3.2)	11.5	(2.4)	19.7	(2.1)	6.7
Relationships	22.5	(1.6)	9.1	(3.9)	15.9	(4.0)	24.0	(3.1)	26.9	(3.0)	10.8*
Social life	28.8	(1.4)	8.0	(3.6)	21.9	(4.6)	25.3	(3.3)	38.2	(3.1)	18.3*
Any area	36.5	(1.7)	17.0	(4.5)	30.8	(5.1)	36.6	(3.2)	42.6	(3.5)	14.8*
II. Any Impairment[3]											
Home	57.7	(1.9)	61.3	(8.0)	53.0	(5.4)	50.5	(3.1)	63.9	(2.9)	8.3*
Work	70.5	(2.0)	58.8	(5.9)	70.9	(4.6)	67.7	(3.3)	74.9	(2.6)	7.9*
Relationships	80.6	(2.1)	56.3	(7.1)	80.0	(4.9)	77.4	(3.5)	88.2	(1.9)	28.6*
Social life	86.1	(1.9)	64.1	(7.2)	86.0	(3.0)	84.3	(3.4)	92.2	(1.7)	29.0*
Any area	92.6	(1.4)	80.2	(5.6)	93.9	(2.1)	90.1	(2.5)	96.5	(1.2)	16.2*
(n)	(679)		(59)		(118)		(207)		(295)		

*Significant difference between the four mutually exclusive social phobia subgroups at the .05 level.

[1]Role impairment was assessed for respondents with social phobia who were in episode in the last 12 months. The 3 degrees of freedom χ^2 test compares social phobia subgroups involving 1–4 (n = 59), 5–7 (n = 118), 8–10 (n = 207), and 11+ (n = 295) fears, indicating whether impairment varies significantly by number of fears.

[2]Values represent the proportions (standard errors) of respondents reporting severe or very severe impairment (score of 7–10) in each of the four Sheehan Disability Scale domains of functioning.

[3]Values represent the proportions (standard errors) of respondents reporting mild, moderate, severe, or very severe impairment (score of 1–10) in each of the four Sheehan Disability Scale domains of functioning.

Table 4

Lifetime and 12-month Treatment[1] of Social Phobia and Four Mutually Exclusive Social Phobia Subgroups

	Lifetime Social Phobia										
	All Lifetime Social Phobia		With 1–4 fears		with 5–7 fears		with 8–10 fears		With 11+ fears		
	%	(se)	%	(se)	%	(se)	%	(se)	%	(se)	χ^2_3
I. Lifetime Treatment											
General medical[2]	37.5	(1.5)	38.8	(5.0)	35.3	(4.3)	35.0	(2.6)	40.1	(2.8)	221.2*
Any mental health specialty[3]	50.6	(1.5)	35.3	(4.7)	49.5	(5.0)	52.0	(3.1)	54.4	(2.7)	312.1*
Psychiatrist	35.4	(1.7)	24.4	(4.8)	31.5	(4.5)	36.6	(3.3)	39.3	(3.0)	237.4*
Other mental health	36.6	(1.5)	22.9	(3.4)	37.7	(4.0)	36.3	(2.9)	40.3	(2.3)	185.5*
Human services[4]	16.3	(1.0)	13.2	(3.8)	15.6	(2.6)	12.8	(1.7)	20.2	(2.5)	110.0*
CAM[5]	20.9	(1.2)	12.5	(3.0)	18.2	(3.2)	23.0	(2.3)	22.8	(1.9)	359.0*
Any of the above	68.9	(1.6)	63.1	(4.8)	68.9	(4.2)	67.9	(2.6)	71.4	(2.8)	335.6*
Social phobia-specific treatment[6]	35.2	(1.1)	28.9	(3.6)	29.3	(3.6)	35.8	(2.4)	39.2	(2.0)	988.1*
(n)	(1143)		(118)		(213)		(354)		(458)		
	12-month Social Phobia										
	All 12-month Social Phobia		with 1–4 fears		with 5–7 fears		with 8–10 fears		With 11+ fears		
	%	(se)	%	(se)	%	(se)	%	(se)	%	(se)	χ^2_3
II. 12-month Treatment											
General medical[2]	24.9	(1.6)	29.4	(5.9)	22.3	(4.3)	24.9	(4.0)	24.9	(2.3)	159.0*
Any mental health specialty[3]	24.3	(1.4)	17.5	(5.3)	18.7	(3.7)	26.1	(3.9)	26.5	(2.1)	237.6*
Psychiatrist	14.9	(1.4)	10.6	(4.3)	14.0	(3.6)	14.8	(3.2)	16.2	(2.1)	193.0*
Other mental health	18.7	(1.5)	14.8	(4.9)	15.0	(3.7)	20.2	(3.4)	19.7	(1.9)	129.9*
Human services[4]	7.7	(1.0)	6.7	(3.3)	6.1	(1.8)	5.9	(1.7)	9.8	(1.7)	51.9*
CAM[5]	7.4	(0.9)	3.2	(2.3)	11.6	(2.4)	5.0	(1.4)	8.5	(1.8)	83.9*
Any of the above	44.7	(1.8)	44.7	(6.1)	39.2	(5.6)	44.4	(4.3)	47.0	(3.3)	296.8*
Social phobia-specific treatment[6]	16.7	(1.2)	15.8	(4.3)	10.7	(3.8)	18.4	(3.1)	17.9	(1.7)	501.5*
(n)	(679)		(59)		(118)		(207)		(295)		

*Significant at the .05 level, two-sided test

[1]Values represent the proportions (standard errors) of respondents with social phobia who reported receiving treatment for any mental health problem or for social phobia specifically. A 3 degrees of freedom χ^2 test compares the four social phobia subgroups, indicating whether lifetime or 12-month treatment-seeking varies significantly by number of fears.

[2]Includes primary care doctor, other general medical doctor, nurse, any other health professional not mentioned elsewhere.

[3]Includes psychiatrist, psychologist, or other mental health professional in any setting; social worker or counselor in a mental health specialty setting; use of a mental health hotline.

[4]Includes religious or spiritual advisor, social worker or counselor in any setting other than a specialty mental health setting.

[5] Complementary-alternative medicine, including any other type of healer, participation in an internet support group, or participation in a self-help group.

[6] Refers to treatment obtained specifically for social phobia in any setting.