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# Treating adolescents with social anxiety disorder in school: an attention control trial

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**Background:** Anxiety disorders are often undetected and untreated in adolescents. This study evaluates the relative efficacy of a school-based, cognitive-behavioral intervention compared to an educational-supportive treatment for adolescents with social anxiety disorder. **Methods:** Thirty-six students (30 females), ages 14 to 16, were randomized to a 12-week specific intervention, Skills for Social and Academic Success (SASS), or a credible attention control matched for structure and contact, conducted in school. **Results:** Independent evaluations and adolescent self-reports indicated significant reduction in social anxiety for SASS compared to the control group. Parent reports of their children's social anxiety did not discriminate between treatments. In the specific intervention, 59%, compared to 0% in the control, no longer met criteria for social anxiety disorder following treatment. Superiority of the SASS intervention was maintained 6 months after treatment cessation. **Conclusions:** The study provides evidence that intervention for social anxiety disorder that emphasizes exposure and social skills is efficacious. Results indicate that clinical improvement is sustained for at least 6 months, and that, overall, adolescents with social anxiety disorder do not respond to non-specific treatment. This investigation has public health implications by demonstrating that effective interventions can be transported to nonclinical settings. **Keywords:** Social anxiety, adolescents, attention-control trial, school-based intervention, behavior therapy.

Social anxiety disorder in adolescents has an estimated prevalence of 4 to 9% (Verhulst, van der Ende, Ferdinand, & Kasius, 1997; Wittchen, Stein, & Kessler, 1999). It has deleterious impairment, and substantial stability into adulthood (Beidel, Turner, & Morris, 1999; Pine, Cohen, Gurley, Brook, & Ma, 1998; Schneier, Johnson, Hornig, Liebowitz, & Weissman, 1992; Wittchen et al., 1999).

Recognition of the clinical importance of social anxiety disorder in youth has fostered development of clinic-based treatments [Social Skills Training: Enhancing social competence in children and adolescents (SST) (Spence, 1995); Cognitive-Behavioral Group Therapy for Adolescents (CBGT-A; Albano, Marten, & Holt, 1991); and Social Effectiveness Therapy for Children (SET-C; Beidel, Turner, & Morris, 1998)]. Although these treatments have similar therapeutic ingredients, slight variations reflect differing models of social anxiety.

SST emphasizes the role of social skills deficits, positing that they incur negative expectations about social situations that lead to anxiety and avoidance (Spence, Donovan, & Brechman-Toussaint, 1999). Therefore, SST emphasizes social skills training, but also includes relaxation techniques, social problem-solving, positive self-instruction, cognitive challenging, and graded exposure to social situations.

Cognitive-Behavioral Group Therapy for Adolescents (CGBT-A: Albano et al., 1991), adapted from a cognitively-oriented treatment for adults (Heimberg, Hope, Dodge, & Becker, 1990), suggests that negative expectations, self-deprecation, and physiological arousal contribute to dysfunctional social performance and avoidance of social situations (Albano & Barlow, 1996; Heimberg & Barlow, 1991). Therefore, the major thrust of CBGT-A is cognitive restructuring, coupled with simulated exposures intended to challenge 'irrational' thoughts. Problem-solving and social skills training are also provided (Albano, 1995).

SET-C is based on the view that avoidance prevents the development of appropriate social skills as well as extinction to feared situations (Beidel et al., 1999). Consistent with this focus, SET-C relies exclusively on behavioral exposure and social skills training.

The above treatments have been evaluated in controlled trials of clinic-referred youth with social anxiety disorder. SST and CBGT-A have been compared to wait-list controls, and SET-C to an attention control. In 7- to 14-year-olds, SST delivered to children alone, or to children plus parents, did not differ, and both were significantly better than the wait-list control, with gains maintained at 12-month follow-up (Spence, Donovan, & Brechman-Toussaint, 2000). CBGT-A also demonstrated superiority to a wait-list control in socially phobic adolescent girls, but groups no longer differed at one-year follow-up (Hayward et al., 2000).

Wait-list control studies provide initial support for potential treatment benefits. However, they fall short of informing on specific efficacy since treatment superiority may be due to non-specific therapeutic features, such as therapist attention and patients'


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expectations. Credible treatment comparators are essential to document treatment efficacy. Only SET-C has been compared to an active comparator. In 8- to 12-year-olds, SET-C demonstrated significant reductions in social anxiety symptoms and behavioral impairment compared to Testbusters, a program for test anxiety. Clinical gains were observable three years after treatment (Beidel, Turner, & Morris, 2000; Beidel, Turner, Young, & Paulson, 2005).

In spite of these promising clinic-based interventions, affected adolescents remain mostly untreated (Essau, Conradt, & Petermann, 1999; Kashdan & Herbert, 2001; Wittchen et al., 1999). Delivering treatment in school provides particular benefits for adolescents with social anxiety disorder for several reasons (Masia Warner et al., 2005; Masia Warner & Fisher, 2005). First, socially anxious adolescents are rarely identified, and parents and teachers typically underestimate children's need for treatment (Kashdan & Herbert, 2001; Masia, Klein, Storch, & Corda, 2001; Pandey et al., 2003). Partnering with schools creates opportunities to educate school personnel and parents, and thus facilitate detection and treatment. Second, adolescents are often reluctant to seek mental health treatment due to perceived stigma (HoganBruen, Clauss-Ehlers, Nelson, & Faenza, 2003), and these worries are particularly potent for individuals with intense fears of negative evaluation and embarrassment. Offering intervention in a non-clinical setting may reduce stigma associated with mental health services (Catron & Weiss, 1994; Weist, 1999). Finally, given that socially anxious adolescents experience significant distress in the school environment, intervention at school allows for a real-world treatment approach (e.g., real-life exposures, participation of peers and teachers).

Based on potential benefits of school-based treatment for social anxiety, Masia and colleagues developed a school intervention, derived from SET-C, called Skills for Academic and Social Success (SASS: Masia et al., 1999). A small open pilot study documented feasibility (Masia et al. 2001). In a subsequent randomized trial of 42 adolescents with social anxiety disorder, ages 13–17, SASS was superior to a wait-list control (Masia Warner et al., 2005). Severity was significantly lower in the intervention than the control group, with an effect size of 2.4. After treatment, 67% of SASS, versus 6% of the wait-list, no longer met diagnostic criteria for social phobia. Only 11.8% of the wait-list group, versus 94.4% of SASS subjects, were treatment responders. Although SASS demonstrated initial promise, an evaluation against an active comparator was necessary to establish its specific efficacy. The current study addresses this limitation.

The present investigation compared the 12-week SASS intervention to a credible alternate treatment (Educational-Supportive Group Function: ESGF). We expected SASS to have immediate and sustained efficacy with regard to social anxiety symptoms and overall functioning. To date, this study is the first attention control trial of an intervention in adolescents with social anxiety disorder delivered in school.

## Method

Study methods were approved by the Institutional Board of Research Associates at the New York University School of Medicine.

### *Recruitment*

*Screening.* Participants were recruited from a school population of 1789 9th through 11th graders in two New York City parochial high schools. Parents received an information form and letter from the principal describing the research program and school screening. Parents were asked to return the form if they or their child did not want to participate in the screening. Of 1789 students, 1593 (89%) completed three anxiety scales, the Multidimensional Anxiety Scale for Children (MASC; March, Parker, Sullivan, Stallings, & Conners, 1997), the Social Phobia and Anxiety Inventory for Children (SPAI-C; Beidel, Turner, & Morris, 1995), and the Social Anxiety Scale for Adolescents (SAS-A; La Greca, 1998). In addition, teachers were asked to nominate shy students.

To maximize identification of social phobia, we intentionally cast a wide net for socially anxious students, selecting the top 15% on any anxiety scale or nomination by teachers as criteria for further screening. Parents of 450 students meeting these criteria were called; 323 (71.8%) agreed to a brief telephone interview that inquired about social anxiety (questions available from CMW). Based on parental reports of possible social anxiety, 151 students (46.7%) were offered further evaluation, and 103 parents (68.2%) agreed to have their child evaluated.

*Diagnostic evaluation.* Signed informed consents were obtained from parents and adolescents. Parents and adolescents were interviewed separately, by the same evaluator, using the Anxiety Disorders Interview Schedule for DSM-IV: Parent and Child Versions (ADIS-PC; Silverman & Albano, 1996). Students with a DSM-IV primary diagnosis (most severe) of social anxiety disorder were enrolled, excepting 1) current psychological or psychopharmacological treatment, 2) current diagnosis of substance use or conduct disorder, 3) concurrent mental disorder of greater severity than social phobia, and 4) psychotic symptoms or current suicidal or homicidal ideation.

Among those interviewed ($n = 103$), 40 (38.8%) met study criteria. Of the 63 (61.2%) who did not, 56 did not receive a social phobia diagnosis, two were receiving treatment for social anxiety, and four had more impairing disorders (i.e., major depression, OCD, and Panic Disorder).[1] Thirty-six of the 40 appropriate sub-

[1] One girl, randomized to the ESGF condition, was diagnosed with aplastic anemia, and died shortly after beginning the intervention. This subject is not included in any of the data reported.

**Table 1** Participant characteristics

| Characteristic | SASS ($N = 19$) | AC ($N = 17$) | Total ($N = 36$) |
|---|---|---|---|
| Age: Mean years (SD), Range (14–16) | 15.0 (.6) | 15.1 (.7) | 15.1 (.6) |
| | *N* (%) | *N* (%) | *N* (%) |
| Sex: Female | 16 (84.2) | 14 (82.4) | 30 (83.3) |
| Ethnicity | | | |
| Caucasian | 14 (73.7) | 12 (70.6) | 26 (72.2) |
| African-American | 1 (5.3) | 1 (5.9) | 2 (5.6) |
| Hispanic | 3 (15.8) | 3 (17.7) | 6 (16.7) |
| Other | 1 (5.3) | 1 (5.9) | 2 (5.6) |
| Current comorbid diagnoses | | | |
| Generalized anxiety disorder | 4 (21.1) | 5 (29.4) | 9 (25.0) |
| Obsessive-compulsive disorder | 1 (5.3) | 1 (5.9) | 2 (5.6) |
| Separation anxiety disorder | 1 (5.3) | 0 | 1 (2.8) |
| Anxiety disorder NOS | 0 | 1 (5.9) | 1 (2.8) |
| Any comorbid anxiety disorder | 6 (31.6) | 6 (35.3) | 12 (33.3) |
| Major depressive disorder | 0 | 1 (5.9) | 1 (2.8) |
| Dysthymia | 1 (5.3) | 2 (11.8) | 3 (8.3) |
| Adjustment disorder with depressed mood | 1 (5.3) | 1 (5.9) | 2 (5.6) |
| Any comorbid mood disorder | 2 (10.5) | 4 (23.5) | 6 (16.7) |
| Eating disorder NOS | 1 (5.3) | 0 | 1 (2.8) |
| Attention deficit disorder | 0 | 1 (5.9) | 1 (2.8) |
| Any comorbid disorder | 8 (42.1) | 7 (41.2) | 15 (41.7) |
| Prior treatment for anxiety | 2 (10.5) | 2 (11.8) | 4 (11.1) |

*Note.* No significant group difference on any characteristic. SASS: Skills for Academic and Social Success; AC: Educational-Supportive Group Function (ESGF).

jects (90%) agreed to participate. There were no apparent differences between refusers and nonrefusers on demographic or diagnostic variables.

*Baseline characteristics.* Tables 1 and 2 summarize demographic and clinical characteristics. Average age was 15.1 years. The majority were white and female. About 42% had at least one comorbid diagnosis, mostly anxiety disorders. Only four reported prior treatment for anxiety.

*Randomization.* Treatment randomization was conducted within school so that each school had active and control conditions. Subjects did not know the students in the alternate condition, so that contamination across treatments was not possible. The 19 adolescents in the SASS group did not differ significantly on any pretreatment variables from the 17 in the ESGF control group (Tables 1 and 2).[2]

*Dropouts.* Four participants (2 from SASS and 2 from ESGF) dropped out during the study. Three (1 from SASS and 2 from ESGF) terminated after two sessions. One SASS dropout terminated after the sixth session. There were no apparent differences in demographics, severity or comorbidity between the 32 completers and 4 noncompleters.

## Treatment

The cognitive-behavioral treatment and attention control treatments were identical in overall structure (frequency and duration of sessions, homework, etc.). (Manuals are available from CMW). The same therapists delivered both treatments (a Ph.D. clinical psychologist and a clinical psychology graduate student).

*Skills for Academic and Social Success.* The SASS intervention is detailed elsewhere (Fisher, Masia Warner, & Klein, 2004; Masia et al., 1999). It consists of 12 group sessions (40 minutes); one session focuses on psychoeducation, one on realistic thinking, four on social skills (starting conversations, inviting others, etc.), and five exposures. The final group addresses relapse prevention. There are also two individual sessions, and four weekend social events (e.g., bowling and laser tag) are implemented with prosocial school peers ('peer assistants'). Parents and teachers attend two group sessions emphasizing psychoeducation regarding social anxiety and methods to manage social anxiety and minimize avoidance. Finally, in the two months following termination, adolescents attend two booster sessions to discuss means for continued improvement.

*Attention control: Educational-Supportive Group Function (ESGF).* The attention control, ESGF (Masia Warner, Fisher, & Klein, 2004), was designed to be identical to SASS in amount of professional attention and format. It omits any therapeutic elements considered specific to reversing social anxiety, such as social skills training, cognitive restructuring, and exposure, but includes instruction on general relaxation strategies. Peer assistants are not included.

All 12 group sessions have two parts: didactics related to social anxiety (e.g., psychoeducation, peer relationships), or instruction in general relaxation techniques, followed by support targeting social anxiety symptoms, anxiety-producing experiences

[2] Subject allocation to ESGF was originally 18, but the subject who died was excluded.

**Table 2** Baseline and posttreatment differences between SASS and attention control groups

| Variable | Pre | | Post | | |
|---|---|---|---|---|---|
| | SASS ($N = 19$) *N* (%) | AC ($N = 17$) *N* (%) | SASS ($N = 17$) *N* (%) | AC ($N = 15$) *N* (%) | $\chi^2$ or *F* (*df*)[a] |
| Social anxiety disorder[b](Present) | 19 (100) | 17 (100) | 7 (41.2) | 15 (100) | 12.8 (1)** |
| Treatment responder[c] | | | | | |
| Independent evaluator[b] | | | 14 (82.4) | 1 (6.7) | 18.3 (1)** |
| Adolescent | | | 16 (94.1) | 6 (40.0) | 10.9 (1)** |
| Parent[d] | | | 13 (76.5) | 9 (64.3) | .6 (1) |
| | M (SD) | M (SD) | M[e] (SE) | M[e] (SE) | |
| Social anxiety severity[b] (0–8) | 5.1 (1.0) | 5.1 (.9) | 3.2 (.2) | 5.0 (.2) | 31.7 (1, 29)** |
| Self-ratings | | | | | |
| Multivariate analyses[f] | | | | | 3.7 (4, 23)* |
| SPAI-C (0–52) | 24.9 (8.8) | 28.9 (9.7) | 13.4 (1.9) | 24.6 (2.0) | 15.5 (1, 26)* |
| SAS-A | | | | | |
| FNE (0–40) | 26.5 (5.8) | 27.5 (7.5) | 19.0 (1.5) | 25.3 (1.6) | 8.1 (1, 26)* |
| SAD-New (0–30) | 20.2 (3.3) | 21.6 (4.4) | 15.9 (1.0) | 20.4 (1.1) | 8.4 (1, 26)* |
| SAD-General (0–20) | 11.2 (2.6) | 10.7 (3.8) | 7.4 (.6) | 9.7 (.6) | 6.8 (1, 26)* |
| BDI-II (0–63) | 11.1 (7.2) | 14.9 (12.9) | 5.1 (1.5) | 13.0 (1.6) | 12.6 (1, 29)* |
| Parent ratings[d] | | | | | |
| SAS-AP (Multivariate analyses) | | | | | .9 (3, 24) |
| FNE (0–40) | 25.8 (8.7) | 26.3 (4.8) | 25.0 (1.1) | 23.8 (1.2) | ND |
| SAD-New (0–30) | 22.6 (4.5) | 22.3 (3.1) | 20.2 (.7) | 20.6 (.8) | ND |
| SAD-General (0–20) | 11.4 (3.7) | 11.8 (2.2) | 10.4 (.6) | 11.2 (.7) | ND |
| Independent evaluator ratings | | | | | |
| CGAS (0–100) | 62.9 (5.9) | 61.2 (4.9) | 71.7 (1.1) | 61.2 (1.1) | 45.2 (1, 29)** |

*Note:* No significant baseline differences.
SASS: Skills for Academic and Social Success; AC: Educational-Supportive Group Function (ESGF); ND: Univariate analyses not done; SPAI-C: Social Phobia and Anxiety Inventory for Children; SAS-A: Social Anxiety Scale for Adolescents; FNE: Fear of Negative Evaluation, subscale of both SAS-A and SAS-A Parent; SAD-New: Social Avoidance and Distress-New, subscale of both SAS-A and SAS-A Parent; SAD-General: Social Avoidance and Distress-General, subscale of both SAS-A and SAS-A Parent; BDI-II: Beck Depression Inventory-II; SAS-AP: Social Anxiety Scale for Adolescents, Parent Version; CGAS: Children's Global Assessment Scale.
[a]Posttreatment completer analyses. [b]Primary outcome. [c]Responder: Clinical Global Impression Scale (CGI) ratings of 1, 2, or 3.[d]Number of parents is $n = 36$ at baseline and $n = 31$ at postassessment. [e]Posttreatment means adjusted for baseline values.
[f]Analyses consisted of the SPAI-C and subscales of the SAS-A.
*$p < .02$. **$p < .001$.

encountered during the week, and upcoming feared events. Individual sessions emphasize support for difficulties related to social anxiety or general life issues. The four weekend social events occur without peer assistants or active guidance to interact. Parent and teacher sessions include psychoeducation on social anxiety and support.

### Measures

Assessments were conducted at preintervention, at 12-weeks postintervention, and at 6-months follow-up. Trained independent evaluators (IE), blind to treatment condition, conducted all clinical assessments.

### Demographic information

Parents completed a questionnaire that assesses standard demographic information and the adolescent's mental health treatment.

### Clinical assessments

*Social phobia diagnosis and severity.* The ADIS-PC interview assesses anxiety, mood and externalizing behavior disorders, and screens for substance use and eating disorders. Severity (CSR) is rated on a 0–8 scale (4 or greater warrants a diagnosis). All interviews were audiotaped, Twenty randomly selected interviews, 11 positive and 9 negative for social anxiety, were rated by a second clinician. Interrater reliability for social anxiety disorder diagnoses was indexed by kappa as .69. The 3 disagreements all differed by one severity point (ratings of 3 versus 4).

*Clinical Global Impression Scale – Improvement* (CGI-I; Klein, Koplewicz, & Kanner, 1992). The CGI-I was completed at the end of treatment by the IE. The scale ranges from 1 (Completely Recovered) to 8 (Much Worse). Ratings from 1 to 3 define treatment responders; ratings ≥4 non-responders.

*Social Phobia and Anxiety Inventory for Children* (SPAI-C; Beidel et al., 1995). This is a self-report that assesses somatic symptoms, cognitions, and behavior across fear-producing situations. The SPAI-C has been shown to be internally consistent (Cronbach's alpha = .95) and to have adequate test–retest reliability: .86 and .63 at 2-week and 10-month intervals (Beidel et al., 1995). This measure has demonstrated sensitivity and specificity for social anxiety diagnosis (Beidel, Turner, Hamlin, & Morris,

2000; Beidel, Turner, & Fink, 1996; Inderbitzen-Nolan, Davies, & McKeon, 2004).

*Social Anxiety Scale for Adolescents* (SAS-A; La Greca, 1998). This is a self-report instrument that contains three subscales: Fear of Negative Evaluation (FNE), Social Avoidance and Distress-New (SAD-New), and Social Avoidance and Distress-General (SAD-General). The SAS-A is psychometrically sound (Ginsburg, La Greca, & Silverman, 1998; Inderbitzen-Nolan & Walters, 2000; La Greca & Lopez, 1998), and discriminates between adolescents with and without social phobia (Ginsburg, La Greca, & Silverman, 1998).

*Social Anxiety Scale for Adolescents: Parent Version* (SAS-AP; La Greca, 1998). This is identical to the SAS-A in content and structure, and is completed by parents about their adolescent.

*Beck Depression Inventory-II* (Beck & Steer, 1993). This is a self-report measure of depression for individuals age 13 and above.

*Parent and Adolescent Clinical Global Impression – Improvement* (CGI-I). Parents and adolescents rated clinical improvement.

*Children's Global Assessment Scale* (CGAS; Shaffer et al., 1983). The IE rated overall functioning, on a 100-point scale, considering psychological, social and school behavior.

### Treatment-related measures

*Treatment credibility ratings* (Silverman et al., 1999). All parents and adolescents rated treatment credibility. Following an explanation of the treatment rationale at the first session with adolescents and parents, they rated two questions on a 4-point scale (0–3), 'How much does this school program make sense to you for helping teenagers become less nervous or anxious?' and 'How sure are you that this school program will help you (your child) become less nervous or anxious?'. Responses were averaged for separate parent and adolescent credibility scores.

*Child's Perception of Therapeutic Relationship* (CPTR: Kendall, 1994). Adolescents' perceptions of the therapeutic relationship were rated on four items (e.g., closeness and comfort with group leader) on a 5-point scale. Ratings were obtained during the first four sessions and averaged.

*Treatment satisfaction ratings.* Parents and adolescents completed four questions about treatment satisfaction at the posttreatment assessment. The items, rated on a 7-point scale, were averaged. They assess views of therapist skill and knowledge, overall satisfaction with the program, and the likelihood of recommending the intervention. This measure was adapted from a treatment satisfaction scale currently used in a multisite, NIMH-funded treatment study of anxiety disorders.

*Treatment integrity.* Integrity checklists outlined the primary content of in-school treatment sessions and were completed by therapists following each session. Content areas that were not addressed were noted.

*Treatment quantity.* Attendance was documented for in-school, social event, and parent sessions. Every effort was made to make-up missed school sessions individually.

### Data analysis

Three primary outcomes were selected a priori: 1) social phobia severity, 2) overall clinical improvement defined as a CGI rating of 1, 2 or 3, and 3) a diagnosis of social phobia. The two-tailed alpha level of significance was modified to $(.05/3) = .0167$ to correct for chance of inflated error due to multiple comparisons. There were two primary outcomes (social phobia severity and diagnosis) at follow-up, and thus, the two-tailed alpha level of significance was set at $(.05/2) = .025$. All other clinician-, self-, and parent- ratings were analyzed as secondary outcome measures at the .05 two-tailed significance level.

Four individuals did not complete the study ($n = 2$ from each treatment); of these, 3 refused a final evaluation ($n = 1$ from SASS and $n = 2$ from ESGF). Of 32 completers at postassessment, 30 ($n = 15$ from SASS and $n = 15$ from ESGF) were evaluated at 6-month follow-up. Two nonresponders from SASS did not participate in the follow-up. One ESGF parent was unavailable for post and follow-up interviews.

Primary outcome variables were subjected to three sets of analyses: 1) completer analyses ($n = 32$ for post and $n = 30$ for follow-up), 2) intent-to-treat analyses that carried forward the last assessment for noncompleters ($n = 36$), and 3) sensitivity analyses, where we conservatively estimated dropouts from the SASS group to be nonresponders, and those from the attention control to be responders ($n = 36$). Because findings of the three sets of analyses did not differ, and missing data are few, only completer analyses are presented for secondary outcomes.

Dichotomous outcomes were analyzed using Chi-Square. Continuous outcomes were analyzed controlling for baseline values using either analysis of covariance (ANCOVA), or multivariate analysis of covariance (MANCOVA) for measures with multiple scores. The residual distributions of continuous outcomes appeared normally distributed. For self-reports, clinical significance was tested via group contrasts in percent of adolescents with scores ≤18 on the SPAI-C, a score previously established as a cutoff for a diagnosis of social phobia (Beidel et al., 1995). Categorical effect sizes were estimated using odds ratios. Confidence bounds on these effect sizes were calculated using exact methods that are appropriate for small samples as reported by Fleiss, Leven, and Paik (2003). Effect sizes for continuous outcomes were calculated using Cohen's $d$ by dividing the group difference in post-adjusted means by the pooled standard deviation at baseline. The criteria proposed by Cohen (1988) were applied, in which .2 reflects a low effect size, .5 average, and .8 high. Confidence bounds for these effect sizes were computed with methods described in Hedges and Olkin (1985).

Finally, the rate of response in the attention control was too low ($n = 1$) to assess maintenance of responder status from posttreatment to follow-up as a function of treatment group. Instead, we used paired *t*-tests in the 14 SASS responders to test for change during the interval between posttreatment and follow-up.

## Results

### *Treatment comparability of SASS and ESGF*

Across both conditions, the average credibility rating, on a 0 to 3 scale, was moderate for adolescents (SASS: $M = 2.2$, $SD = .5$ and ESGF: $M = 1.9$, $SD = .4$) and higher for parents (SASS: $M = 2.6$, $SD = .5$ and ESGF: $M = 2.5$, $SD = .4$). There were no significant differences in expectancy between treatment groups at the start of the trial. In both conditions, students reported positive feelings about group leaders ($M = 4.0$, $SD = .5$ for SASS and $M = 3.6$, $SD = .6$ for ESGF).

Attendance of school sessions was 99.5% for SASS and 100% for ESGF. Attendance for the four social events was 84.7% for SASS and 82.4% for ESGF. Parental sessions were less well attended, 59% for SASS and 66% for ESGF (non-significant difference). Treatment integrity ratings across the 12 group sessions were high, 98.4% for SASS and 97.9% for ESGF. No significant group differences were found.

We hypothesized that posttreatment satisfaction ratings would be confounded by parents' and adolescents' perception of improvement. Therefore, we accounted for parent- and self-reported clinical improvement in analyzing satisfaction ratings. Adolescents who reported themselves to be treatment responders reported greater satisfaction with the intervention ($M = 6.3$, $SD = .7$ for responders and $M = 5.2$, $SD = .8$ for nonresponders), $F$ (1, 29) = 11.1, $p < .01$. Satisfaction did not differ by treatment group. In contrast, parents in the active intervention ($M = 6.5$, $SD = .5$) reported more satisfaction than those in the attention control ($M = 5.8$, $SD = .6$), $F$ (1, 28) = 6.2, $p < .05$. Satisfaction was not related to parent ratings of improvement.

### *Posttreatment outcomes*

Table 2 presents raw means at baseline, and means for completers at posttreatment, adjusted for prevalues. Groups did not differ significantly on any pretreatment variables.

*Social phobia severity.* Among completers, severity ratings of social anxiety disorder were significantly lower in SASS compared to the ESGF group at posttreatment. Findings were retained in the intent to treat analysis (Adj $M = 3.3$, $SE = .2$ for SASS and Adj $M = 5.1$, $SE = .2$ for ESGF), $F$ (1, 33) = 32.8, $p < .001$. For the sensitivity analysis, the two ESGF dropouts were assigned the same decrease observed for one of the SASS dropouts at her final assessment (a 2-point decrease), while the other SASS dropout was assigned his baseline severity value. Even under these conservative conditions, severity ratings were significantly lower for SASS (Adj $M = 3.3$, $SE = .3$) than ESGF (Adj $M = 4.8$, $SE = .3$), $F$ (1, 33) = 20.7, $p < .001$.

*Responder status.* Among completers, 14 of 17 (82.4%) SASS participants were classified as responders compared to only 1 of 15 (6.7%) ESGF participants, $\chi^2$ (1) = 18.3, $p < .001$. Similar group differences were obtained in the intent to treat analysis, $\chi^2$ (1) = 19.4, $p < .001$, with 78.9% response for SASS and 5.9% for ESGF. Results were robust to sensitivity analyses with response rates of 78.9% for SASS and 17.6% for ESGF, $\chi^2$ (1) = 13.5, $p < .001$.

*Social phobia diagnosis.* Among SASS completers, 10 of 17 (58.8%) no longer met criteria for social anxiety disorder, compared to 0 of 15 in ESGF, $\chi^2$ (1) = 12.8, $p < .001$. Significant treatment differences were also found in the intent to treat (58% SASS and 0% ESGF diagnosis free), $\chi^2$ (1) = 14.2, $p < .001$) and sensitivity analyses (58% SASS and 11.8% ESGF diagnosis free), $\chi^2$ (1) = 8.3, $p < .02$.

*Social phobia self-report (SAS-A and SPAI-C).* A significant multivariate group effect was found, $F$ (4, 23) = 3.7, $p < .02$. Follow-up univariate tests indicated that self-reported social anxiety was significantly lower for SASS than ESGF on SAS-A subscales and the SPAI-C. On the SPAI-C, 15 of 17 SASS participants (88.2%) compared to 4 of 15 ESGF participants (26.7%) were below the cutoff score of 18 at posttreatment, $\chi^2$ (1) = 12.5, $p < .001$.

*BDI.* At posttreatment, self-rated depression was significantly lower in SASS than ESGF; however, scores were low in both groups.

*Social phobia parent-report.* No significant treatment effects were found for parent report of their child's anxiety.

*Clinical improvement (parent and adolescent).* There was no significant treatment difference in parent-reported improvement. Parents reported relatively high rates of improvement for both SASS and ESGF (76.5% vs. 64.3% respectively) participants. In contrast, significantly more adolescents in SASS (94.1%) rated themselves as improved than those in ESGF (40%).

*CGAS.* Overall function was rated superior in adolescents in SASS than those in ESGF.

*Effect sizes.* Effect sizes and confidence intervals are presented in Table 3. For social anxiety disorder, the odds ratio estimate of effect size could not be

**Table 3** Treatment effect sizes and confidence intervals

| Variable | Effect size | Confidence interval |
|---|---|---|
| | Odds ratio | 95% Confidence interval |
| Social anxiety disorder[a] (Present) | –[b] | 3.4, –[b] |
| Treatment responder[c] | | |
| Independent evaluator[a] | 65.3 | 5.1, 2949.4 |
| Adolescent | 24.0 | 2.2, 1115.3 |
| Parent | 1.8 | .3, 11.7 |
| | Cohen's d effect size | 95% Confidence interval |
| Social anxiety severity[a] (0–8) | −1.9 | −2.6, −1.0 |
| Self-ratings | | |
| SPAI-C (0–52) | −1.3 | −2.0, −.5 |
| SAS-A | | |
| FNE (0–40) | −1.0 | −1.7, −.3 |
| SAD-New (0–30) | −1.2 | −1.9, −.4 |
| SAD-General (0–20) | −.8 | −1.5, −.03 |
| BDI-II (0–63) | −.8 | −1.5, −.02 |
| Parent ratings | | |
| SAS-AP | | |
| FNE (0–40) | .2 | −.5, .9 |
| SAD-New (0–30) | −.1 | −.8, .6 |
| SAD-General (0–20) | −.2 | −.9, .5 |
| Independent evaluator ratings | | |
| CGAS (0–100) | 1.3 | .5, 2.03 |

*Note.* SPAI-C: Social Phobia and Anxiety Inventory for Children; SAS-A: Social Anxiety Scale for Adolescents; FNE: Fear of Negative Evaluation, subscale of both SAS-A and SAS-A Parent; SAD-New: Social Avoidance and Distress-New, subscale of both SAS-A and SAS-A Parent; SAD-General: Social Avoidance and Distress-General, subscale of both SAS-A and SAS-A Parent; BDI-II: Beck Depression Inventory-II; SAS-AP: Social Anxiety Scale for Adolescents, Parent Version; CGAS: Children's Global Assessment Scale. [a]Primary outcome. [b]Because 100% of adolescents in the control condition (ESGF) had the disorder, the odds ratio was essentially. infinite (technically undefined). We can only estimate the 95% lower bound of the confidence interval. [c]Responder: Clinical Global. Impression Scale (CGI) ratings of 1, 2, or 3.

calculated since all control subjects had retained the disorder at post intervention. Although the odds ratio suggested essentially an infinite effect size, the 95% lower bound of 3.4 confirms that effect is strong. Large intervention effects were also observed for IE and self-rated treatment response, and for diagnostic severity, self-reported social anxiety, and overall functioning. For parent reports of child's social anxiety and treatment response, effect sizes were small. The point estimate was 1.8 and the confidence interval included an odds ratio of 1.0, indicating equivalent parent perception of improvement between groups.

### *Six-month follow-up*

*Social phobia severity.* Table 4 presents means for completers at follow-up, adjusted for pre-values. In treatment completers, social phobia severity ratings at follow-up were significantly lower for SASS than ESGF. Similar findings were obtained in intent to treat analyses, $F(1, 33) = 22.9$, $p < .001$, [SASS Adj $M = 3.2$, $SE = .2$ and ESGF Adj $M = 4.8$, $SE = .3$]. In the sensitivity analysis, the SASS dropouts ($n = 4$) were assigned their baseline values, while the ESGF dropouts ($n = 2$) were assigned a 2-point decrease. Severity ratings were still significantly lower for SASS (Adj $M = 3.3$, $SE = .3$) than ESGF (Adj $M = 4.6$, $SE = .3$), $F(1, 33) = 12.2$, $p < .01$.

*Social phobia diagnosis.* Among completers, 11 of 15 SASS students (73.3%) did not meet criteria for social phobia at follow-up, compared with 1 of 15 ESGF students (6.7%), $\chi^2$ (1) = 13.4, $p < .001$. Significant group differences in diagnostic status were also obtained in the intent to treat (63.2% SASS and 5.6% ESGF diagnosis free), $\chi^2$ (1) = 12.8, $p < .001$ and sensitivity analyses (58% SASS and 17.6% ESGF diagnosis free), $\chi^2$ (1) = 6.1, $p < .02$.

*Social phobia self-report (SAS-A and SPAI-C).* Self-reports of social anxiety on the SAS-A (FNE, SAD-N, SAD-G) and the SPAI-C were in the expected direction, but the multivariate group effect was not significant, $F(4, 21) = 2.1$, $p = .12$. At follow-up, 13 of 15 (86.7%) SASS participants compared to 7 of 15 (46.7%) ESGF participants scored in the normal range on the SPAI-C, $\chi^2$ (1) = 5.4, $p < .02$.

*BDI.* Self-reported depression was significantly lower in SASS than ESGF, but scores for both groups were low, indicating no clinical significance.

*Social phobia parent-report.* No significant treatment effects were found for parent reports of their child's anxiety.

*CGAS.* Adolescents in SASS were judged to be functioning significantly better than those in ESGF.

**Table 4** Outcomes for SASS and attention control groups at 6-months follow-up

| Variable | Treatment group SASS ($N = 15$) $N$ (%) | AC ($N = 15$) $N$ (%) | $\chi^2$ or $F$ ($df$)[a] |
|---|---|---|---|
| Social anxiety disorder[b] (Present) | 4 (26.7) | 14 (93.3) | 13.4 (1)** |
| | M[c] (SE) | M[c] (SE) | |
| Social anxiety severity[b] (0–8) | 2.7 (.2) | 4.7 (.2) | 40.9 (1, 27)** |
| Self-ratings | | | |
| Multivariate analyses[d] | | | 2.1 (4, 21) |
| SPAI-C (0–52) | 13.1 (3.0) | 23.2 (3.0) | ND |
| SAS-A | | | |
| FNE (0–40) | 16.8 (1.9) | 24.6 (1.9) | ND |
| SAD-New (0–30) | 14.6 (1.1) | 19.6 (1.1) | ND |
| SAD-General (0–20) | 7.0 (.7) | 9.7 (.7) | ND |
| BDI-II (0–63) | 5.9 (1.9) | 12.9 (1.9) | 6.6 (1, 27)* |
| Parent ratings[e] | | | |
| SAS-AP (multivariate analyses) | | | 2.1 (3, 22) |
| FNE (0–40) | 20.2 (.9) | 22.7 (1.0) | ND |
| SAD-New (0–30) | 17.2 (.6) | 18.9 (.6) | ND |
| SAD-General (0–20) | 8.9 (.5) | 10.6 (.6) | ND |
| Independent evaluator ratings | | | |
| CGAS (0–100) | 71.1 (1.4) | 60.2 (1.4) | 28.8 (1, 27)** |

*Note:* SASS: Skills for Academic and Social Success; AC: Educational-Supportive Group Function (ESGF); ND: Univariate analyses not done; SPAI-C: Social Phobia and Anxiety Inventory for Children; SAS-A: Social Anxiety Scale for Adolescents; FNE: Fear of Negative Evaluation, subscale of both SAS-A and SAS-A Parent; SAD-New: Social Avoidance and Distress-New, subscale of both SAS-A and SAS-A Parent; SAD-General: Social Avoidance and Distress-General, subscale of both SAS-A and SAS-A Parent; BDI-II: Beck Depression Inventory-II; SAS-AP: Social Anxiety Scale for Adolescents, Parent Version; CGAS: Children's Global Assessment Scale.

[a]Follow-up completer analyses.[b]Primary outcome. [c]Follow-up means adjusted for baseline values. [d]Analyses consisted of the SPAI-C and subscales of the SAS-A. [e]Number of parents at follow-up = 29.

*$p < .02$. **$p < .001$.

### *Maintenance of treatment gains from postassessment to follow-up*

Comparisons of values from postassessment to follow-up of the 14 SASS responders indicated that improvement was maintained. With the exception of parent ratings, mean values remained almost identical. Parent reports of their child's social anxiety significantly decreased on the FNE, SAD-N, and SAD-G, $t(13) = 6.1$, $p < .01$ for FNE; $t(13) = 4.9$, $p < .01$ for SAD-N; $t(13) = 3.4$, $p < .01$ for SAD-G. (Mean values are available from CMW.)

## Discussion

Several observations gave impetus to this study. First, impairing social anxiety is common in adolescents, and the condition goes untreated in the majority. Second, our previous studies indicated that social anxiety disorder can be identified and treated in school, a setting in which impairment is evident, and one that circumvents barriers to clinical care. Third, rigorous studies of socially anxious adolescents, and of treatment delivery in schools, were lacking.

The 12-week cognitive-behavioral intervention, developed for delivery in high school, was superior to a credible attention control treatment in multiple ways. It significantly reduced social anxiety and improved overall functioning. Improvement was clinically significant, evidenced by the finding that 59% of the SASS group no longer qualified for a diagnosis of social phobia versus 0% of the attention control. Only 6.7% in the attention control, versus 82.4% in SASS, were treatment responders. The superiority of SASS continued for 6 months beyond the cessation of treatment. These results, in a relatively small sample, document the clinical relevance of findings.

The results have particular significance since schools provide the opportunity to enhance recognition of social anxiety through education of school personnel and parents, and to intervene with impaired teenagers who otherwise would not receive treatment. Consistent with previous findings (Masia Warner et al., 2005), a minority of adolescents (11.1%) had ever sought treatment for social anxiety, in spite of their being from middle-class backgrounds. The adolescents were comparable to clinic-based samples in severity, self-reported social anxiety, and comorbidity.

The SASS intervention was developed specifically for school delivery, a feature which constrained treatment duration. Although considerably shorter than other treatment programs, efficacy was clear on multiple outcomes. It may be that intervening in school optimizes benefits by providing a real-world setting in which to implement exposure and to facilitate generalization. It enabled enrollment of school

staff to tailor exposures (e.g., asking questions to the librarian, speaking to the principal), and of school peers to practice social interaction. Finally, the fact that the treated adolescents and peer assistants were in school together facilitated social risk-taking and generalization in the natural environment. This central treatment goal is difficult to accomplish in traditional clinic settings.

Study results are relevant to our understanding of the therapeutics of social anxiety disorder in several ways. First, they extend Beidel and colleagues' (2000) findings in children to adolescents, strengthening evidence that intervention for social anxiety disorder that emphasizes exposure and social skills is efficacious. Second, in contrast to previous studies of social phobia, our trial: 1) assessed credibility and showed equivalence across treatment conditions and 2) provided a 6-month follow-up of both intervention groups, neither of which received intervening treatment. Results support that meaningful clinical improvement is sustained at least 6 months, and that, overall, adolescents with social anxiety disorder do not respond to non-specific treatment. Importantly, this investigation has public health implications by demonstrating that effective interventions can be transported to nonclinical settings.

Because the SASS intervention had many components, treatment ingredients that contributed to change are not known. First, although targeting social skills seems to be a useful intervention, it has not been established that socially anxious youth have actual skills deficits since existing studies (Beidel et al., 1999; Cartwright-Hatton, Tschernitz, & Gomersall, 2005; Spence et al., 1999) lack observations of social interaction with individuals with whom youngsters are comfortable. Second, it is unlikely that relaxation and mere implementation of social events are valuable since the attention control, which included these approaches, was strikingly ineffective. In the absence of targeted efforts by therapists and peer assistants to facilitate social interaction, teenagers in the control group avoided social contact, and performed no better than those who had been randomized to the wait-list condition in our previous trial (Masia Warner et al., 2005). The clinical impression was that adolescents in ESGF were more demoralized than those in the previous 'untreated' group, likely due to their failure in a credible intervention.

Unlike the independent evaluators and adolescents, parents were not discriminating reporters of treatment efficacy, and reported improvement regardless of treatment. It may be that parents had greater treatment allegiance since they were the impetus for enrolling the adolescents, who often were initially reluctant participants. However, SASS parents reported more satisfaction with the program than ESGF parents, which may be an indirect reflection of their view of treatment efficacy.

Similar to other school-based efforts for anxiety (Dadds, Spence, Holland, Barrett, & Laurens, 1997), identification of affected youth required self-reports and teacher nominations followed by telephone contacts and diagnostic interviews. This lengthy recruitment process will require streamlining for sustainability in schools.

### *Limitations*

First, although not significant, there was a trend for SASS to have better student-rated credibility, raising the possibility that differential expectations impacted treatment outcomes. Another study limitation is the absence of independent evaluation of treatment integrity since we relied on therapist-completed integrity checklists. Finally, the generalizability of findings to all adolescents with social anxiety disorder is limited by the fact that participants were recruited from parochial schools in an urban New York area, and were largely Caucasian and female. The sample size, although relatively small, was predetermined via power analyses based on effect sizes found in our previous controlled trial (Masia Warner et al., 2005). However, larger efficacy trials would contribute to confidence in treatment effects.

## Conclusion

The present study has significant clinical implications for the treatment of social anxiety in adolescents. It supports the relative efficacy of a school-based, 12-week, cognitive-behavioral intervention that emphasizes exposure and rehearsal of social skills. Intervening in schools provides opportunities largely unavailable in traditional clinical settings. No clinical benefit was found with supportive therapy, an intervention typically used by school mental health professionals. The effectiveness of school-based intervention, and the low service use in this clinical population, provide justification for incorporating screening and specialized intervention programs in schools. Future efforts will be to train school personnel to implement the intervention, and to evaluate efficacy when treatment is delivered by non-specialists.

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## References


Albano, A.M. (1995). Treatment of social anxiety in adolescents. *Cognitive and Behavioral Practice*, *2*, 271–298.

Albano, A.M., & Barlow, D.H. (1996). Breaking the vicious cycle: Cognitive-behavioral group treatment for socially anxious youth. In E.D. Hibbs & P.S. Jensen (Eds.), *Psychosocial treatments for child and adolescent disorders: Empirically based strategies for clinical practice* (pp. 43–62). Washington, DC: American Psychological Association.

Albano, A.M., Marten, P.A., & Holt, C.S. (1991). *Therapist's manual for Cognitive-Behavioral Group Therapy for adolescent social phobia*. Unpublished treatment manual.

Beck, A.T., & Steer, R.A. (1993). *Manual for the Beck Depression Inventory*. San Antonio, TX: Psychological Corporation.

Beidel, D.C., Turner, S.M., & Fink, C.M. (1996). Assessment of childhood social phobia: Construct, convergent, and discriminative validity of the Social Phobia and Anxiety Inventory for Children (SPAI-C). *Psychological Assessment*, *3*, 73–79.

Beidel, D.C., Turner, S.M., Hamlin, K., & Morris, T.L. (2000). The Social Phobia and Anxiety Inventory for Children (SPAI-C): External and discriminative validity. *Behavior Therapy*, *31*, 75–87.

Beidel, D.C., Turner, S.M., & Morris, T.L. (1995). A new inventory to assess childhood social anxiety and phobia: The Social Phobia and Anxiety Inventory for Children. *Psychological Assessment*, *7*, 73–79.

Beidel, D.C., Turner, S.M., & Morris, T.L. (1998). *Social Effectiveness Therapy for Children: A treatment manual*. Unpublished manuscript, Medical University of South Carolina.

Beidel, D.C., Turner, S.M., & Morris, T.L. (1999). Psychopathology of childhood social phobia. *Journal of the American Academy of Child and Adolescent Psychiatry*, *38*, 643–650.

Beidel, D.C., Turner, S.M., & Morris, T.L. (2000). Behavioral treatment of childhood social phobia. *Journal of Consulting and Clinical Psychology*, *68*, 1072–1080.

Beidel, D.C., Turner, S.M., Young, B., & Paulson, A. (2005). Social Effectiveness Therapy for children: Three-year follow-up. *Journal of Consulting and Clinical Psychology*, *73*, 721–725.

Cartwright-Hatton, S., Tschernitz, N., & Gomersall, H. (2005). Social anxiety in children: Social skills deficit, or cognitive distortion? *Behaviour Research and Therapy*, *43*, 131–141.

Catron, T., & Weiss, B. (1994). The Vanderbilt School-based Counseling Program: An interagency, primary-care model of mental health services. *Journal of Emotional and Behavioral Disorders*, *2*, 247–253.

Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd edn). Hillsdale, NY: Lawrence Erlbaum Associates.

Dadds, M.R., Spence, S.H., Holland, D.E., Barrett, P.M., & Laurens, K.R. (1997). Prevention and early intervention for anxiety disorders: A controlled trial. *Journal of Consulting and Clinical Psychology*, *65*, 627–635.

Essau, C.A., Conradt, J., & Petermann, F. (1999). Frequency and comorbidity of social phobia and social fears in adolescents. *Behaviour Research and Therapy*, *37*, 831–843.

Fisher, P.H., Masia Warner, C., & Klein, R. (2004). Skills for Social and Academic Success: A school-based intervention for social anxiety disorder in adolescents. *Clinical Child and Family Psychology Review*, *7*, 241–249.

Fleiss, J.L., Leven, B., & Paik, M.C. (2003). *Statistical methods for rates and proportions* (3rd edn). New York: Wiley.

Ginsburg, G.S., La Greca, A.M., & Silverman, W.K. (1998). Social anxiety in children with anxiety disorders: Relation with social and emotional functioning. *Journal of Abnormal Child Psychology*, *26*, 175–185.

Hayward, C., Varady, S., Albano, A.M., Thienemann, M., Henderson, L., & Schatzberg, A.F. (2000). Cognitive-behavioral group therapy for social phobia in female adolescents: Results of a pilot study. *Journal of the American Academy of Child and Adolescent Psychiatry*, *39*, 721–726.

Hedges, L.V., & Olkin, I. (1985). *Statistical methods for meta-analysis*. New York: Academic Press.

Heimberg, R.G., & Barlow, D.H. (1991). New developments in cognitive-behavioral therapy for social phobia. *Journal of Clinical Psychiatry*, *52*, 21–30.

Heimberg, R.G., Hope, D.A., Dodge, C.S., & Becker, R.E. (1990). DSM-III-R subtypes of social phobia: Comparison of generalized social phobics and public speaking phobics. *Journal of Nervous and Mental Disease*, *178*, 172–179.

HoganBruen, K., Clauss-Ehlers, C., Nelson, D., & Faenza, M.M. (2003). Effective advocacy for school-based mental health programs. In M.D. Weist (Ed.), *Handbook of school mental health: Advancing practice and research. Issues in clinical child psychology* (pp. 45–59). New York: Kluwer Academic/Plenum Publishers.

Inderbitzen-Nolan, H.M., Davies, C.A., & McKeon, N.D. (2004). Investigating the construct validity of the SPAI-C: Comparing the sensitivity and specificity of the SPAI-C and the SAS-A. *Journal of Anxiety Disorders*, *18*, 547–560.

Inderbitzen-Nolan, H.M., & Walters, K.S. (2000). Social Anxiety Scale for Adolescents: Normative data and further evidence of construct validity. *Journal of Clinical Child Psychology*, *29*, 360–371.

Kashdan, T.B., & Herbert, J.D. (2001). Social anxiety disorder in childhood and adolescence: Current status and future directions. *Clinical Child and Family Psychology Review*, *4*, 37–61.

Kendall, P.C. (1994). Treating anxiety disorders in children: Results of a randomized clinical trial. *Journal of Consulting and Clinical Psychology*, *62*, 100–110.

Klein, R.G., Koplewicz, H.S., & Kanner, A. (1992). Imipramine treatment of children with separation anxiety disorder. *Journal of the American Academy of Child and Adolescent Psychiatry*, *31*, 21–28.

La Greca, A.M. (1998). *Social anxiety scales for children and adolescents: Manual and instructions for the SASC, SASC-R, SAS-A and parent versions of the scales*. Unpublished manuscript available from the author, University of Miami, Coral Gables, FL.

La Greca, A.M., & Lopez, N. (1998). Social anxiety among adolescents: Linkages with peer relations and friendships. *Journal of Abnormal Child Psychology*, *26*, 83–94.

March, J.S., Parker, J.D., Sullivan, K., Stallings, P., & Conners, C.K. (1997). The Multidimensional Anxiety Scale for Children (MASC): Factor structure, reliability, and validity. *Journal of the American Academy of Child and Adolescent Psychiatry*, *36*, 554–565.

Masia, C., Beidel, D.C., Fisher, P.H., Albano, A.M., Rapee, R.M., Turner, S.M., et al. (1999). *Skills for Academic and Social Success*. Available from Carrie Masia Warner, New York University School of Medicine, Child Study Center, 215 Lexington Avenue, 13th floor, New York, NY 10016.

Masia, C.L., Klein, R., Storch, E.A., & Corda, B. (2001). School-based behavioral treatment for social anxiety disorder in adolescents: Results of a pilot study. *Journal of the American Academy of Child and Adolescent Psychiatry*, *40*, 780–786.

Masia Warner, C., & Fisher, P. (2005, April). School-based intervention for social anxiety disorder in adolescents: A promising direction for treatment research. *Child and Adolescent SIG Newsletter*, *4*, 13–15.

Masia Warner, C., Fisher, P.H., & Klein, R. (2004). *Educational-Supportive Group Function*. Available from Carrie Masia Warner, New York University School of Medicine, Child Study Center, 215 Lexington Avenue, 13th floor, New York, NY 10016.

Masia Warner, C., Klein, R.G., Dent, H.C., Fisher, P.H., Alvir, J., Albano, A.M., et al. (2005). School-based intervention for adolescents with social anxiety disorder: Results of a controlled study. *Journal of Abnormal Child Psychology*, *33*, 707–722.

Pandey, P., Han, S., Fisher, P.H., Ferrante, D., Selinger, A., Cho, L.Y-J., et al. (2003). *Barriers to referral of socially anxious students: Teacher perspectives of why they go unnoticed*. Poster presented at the 37th Annual Convention of the Association for the Advancement of Behavior Therapy, Boston, MA.

Pine, D.S., Cohen, P., Gurley, D., Brook, J., & Ma, Y. (1998). The risk for early-adulthood anxiety and depressive disorders in adolescents with anxiety and depressive disorders. *Archives of General Psychiatry*, *55*, 56–64.

Schneier, F.R., Johnson, J., Hornig, C.D., Liebowitz, M.R., & Weissman, M.M. (1992). Social phobia: Comorbidity and morbidity in an epidemiologic sample. *Archives of General Psychiatry*, *49*, 282–288.

Shaffer, D., Gould, M.S., Brasic, J., Ambrosini, P., Fisher, P., Bird, H., & Aluwahlia, S. (1983). A children's global assessment scale (CGAS). *Archives of General Psychiatry*, *40*, 1228–1231.

Silverman, W.K., & Albano, A.M. (1996). *The Anxiety Disorders Interview Schedule for DSM-IV: Child and parent versions*. San Antonio, TX: Psychological Corporation.

Silverman, W.K., Kurtines, W.M., Ginsburg, G.S., Weems, C.F., Rabian, B., & Serafini, L.T. (1999). Contingency management, self-control, and education support in the treatment of childhood phobic disorders: A randomized clinical trial. *Journal of Consulting and Clinical Psychology*, *67*, 675–687.

Spence, S.H. (1995). *Social Skills Training: Enhancing social competence with children and adolescents*. Windsor, UK: NFER-Nelson.

Spence, S.H., Donovan, C., & Brechman-Toussaint, M. (1999). Social skills, social outcomes, and cognitive features of childhood social phobia. *Journal of Abnormal Psychology*, *108*, 211–221.

Spence, S.H., Donovan, C., & Brechman-Toussaint, M. (2000). The treatment of childhood social phobia: The effectiveness of a social skills training-based, cognitive-behavioural intervention, with and without parental involvement. *Journal of Child Psychology and Psychiatry*, *41*, 713–726.

Verhulst, F.C., van der Ende, J., Ferdinand, R.F., & Kasius, M.C. (1997). The prevalence of DSM-III-R diagnoses in a national sample of Dutch adolescents. *Archives of General Psychiatry*, *54*, 329–336.

Weist, M.D. (1999). Social fears and social phobia in a community sample of adolescents and young adults: Prevalence, risk factors and co-morbidity. *Psychological Medicine*, *29*, 309–323.

Wittchen, H.-U., Stein, M., & Kessler, R. (1999). Social fears and social phobia in a community sample of adolescents and young adults: Prevalence, risk factors and co-morbidity. *Psychological Medicine*, *29*, 309–323.

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