Published in final edited form as:

Behav Res Ther. 2010 October ; 48(10): 992–1001. doi:10.1016/j.brat.2010.06.005.

Social Skills and Social Phobia: An Investigation of DSM-IV Subtypes

Deborah C. Beidel,

Department of Psychology, University of Central Florida

Patricia A. Rao,

Center for Autism and Related Disorders, Kennedy Krieger Institute

Lindsay Scharfstein,

Department of Psychology, University of Central Florida

Nina Wong, and

Department of Psychology, University of Central Florida

Candice A. Alfano

Children's National Medical Center, The George Washington University School of Medicine

Abstract

Social phobia is characterized as pervasive social timidity in social settings. Although much is known about this disorder, aspects of its clinical presentation remain unexplored, in particular characteristics that distinguish the generalized and non-generalized subtypes. For example, it remains unclear whether patients with the non-generalized subtype display social skills deficits in social interactions, and if so, are these deficits clinically, as well as statistically, significant? In this study, adults with either the non-generalized (NGSP; $n=60$) or generalized (GSP; $n=119$) subtype of social phobia and adults with no psychological disorder ($n=200$) completed an extensive behavioral assessment of social skill and social anxiety. As expected, adults with NGSP and GSP reported equal distress and displayed similar rates of avoidance during an impromptu speech task when compared to adults with no disorder. In contrast, the three groups were distinctly different when interacting with another person in various social situations. Adults with NGSP displayed social skill deficits when compared to individuals with no disorder, but they had fewer deficits than the GSP subtype. However, the identified skill deficits were clinically as well as statistically significant only for the GSP subtype. The results are discussed in terms of the contribution of skill deficits to the conceptualization and treatment of social phobia.

Keywords

social phobia; social skills; social anxiety disorder; behavioral assessment of social skill

---

© 2010 Elsevier Ltd. All rights reserved.

Correspondence regarding the manuscript should be directed to Deborah C. Beidel, Ph.D., Department of Psychology, University of Central Florida, 4000 Central Florida Blvd, Orlando, FL 32816. 407-823-3910; dbeidel@mail.ucf.edu.

Publisher's Disclaimer: This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final citable form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

Introduction

Social phobia is characterized by pervasive social timidity, social distress and avoidance, and for some individuals, difficulty in basic social discourse. Studies aimed at elucidating its phenomenology reveal a picture of social reticence, the perception of an inability to maintain social conversations, an increased expectation of failure, fewer friends, minimal engagement in social activities, and selection of occupations based on expectancy of social interaction (e.g., Beidel & Turner, 2007). Originally dismissed as a “problem with public speaking”, there is now clear and overwhelming evidence that social phobia is a pervasive, chronic and debilitating condition that affects occupational, social, and academic functioning, including limited occupational achievement, restricted social relationships, and substance abuse (Bruch, Fallon, & Heimberg, 2003; Katzelnick et al., 2001; Keller, 2003; Kessler, 2003).

The diagnostic criteria for social phobia includes a diagnostic specifier called the generalized subtype. Patients with the generalized subtype (GSP), which may account for up to 70% of those seeking treatment (Turner, Beidel, & Townsley, 1992), experience distress in a range of social settings. Those who do not meet the description of GSP have been described in various ways but are most commonly called the non-generalized subtype (NGSP), defined by a more restricted pattern of social fear, often limited to one (or a few) situation(s) such as speaking, eating, drinking, or writing in public. Although different research clinics use somewhat different criteria by which to define subtypes, the distinction can be made reliably (Beidel & Turner, 2007). These two subtypes differ on many aspects of psychopathology. Patients with GSP have more severe social anxiety, general anxiety, depression, social inhibition, fear of negative evaluation, avoidance, fearfulness, and self consciousness (Bruch, 1989; Heimberg, Hope, Dodge, & Becker, 1990; Herbert, Hope, & Bellack, 1992). Furthermore, they are also more likely to endorse educational and occupational impairment, have more comorbid Axis I and Axis II disorders, have an earlier age of onset, and more frequent histories of childhood shyness (Herbert et al., 1992; Stemberger, Turner, Beidel, & Calhoun, 1995; Turner, Beidel, Borden, Stanley, & Jacob, 1991).

Overall, adults with GSP have a more complicated symptom presentation and a more serious and pervasive clinical course. One area where there has been less empirical attention however is the issue of social skill. Whereas ample data indicate that, compared to people with no disorder, youth and adults with GSP display social skill deficits (Beidel et al., 1999; Beidel et al., 2007; Turner, Beidel, Dancu, & Keyes, 1986), few studies have examined empirically the issue of skill deficits with reference to the subtype distinction. An initial investigation, based on patients diagnosed according to DSM-III-R criteria, used individualized tasks (Heimberg et al., 1990). Overall, blinded observers rated patients with GSP as significantly less skilled when engaged in a social interaction compared to patients with public speaking fears (i.e., NGSP) who gave a speech. Since different tasks were used, direct comparison of specific skills was not possible. In another study comparing patients with NGSP, GSP and GSP plus avoidant personality disorder (APD), both public speaking and unstructured social interactions were used (Turner, Beidel, & Townsley, 1992). There were no differences among the groups on either molecular behaviors (e.g., facial gaze, speech length, vocal tone) or on an overall measure of social effectiveness. Similarly, a third study (Herbert et al., 1992) did not find skill differences between patients with GSP alone and patients with the GSP plus APD. However, this study did not include patients with the NGSP subtype. Finally, in a fourth investigation, patients with public speaking phobias (n=12), GSP without APD (n=20), and GSP plus APD (n=9) were compared on behavioral tasks (Boone et al., 1999). Adults with GSP plus APD displayed more avoidance/escape behaviors than adults with public speaking phobia. On various molecular (gaze, voice volume, intonation) and molar (skill, anxiety) behaviors, only one significant difference emerged; patients with GSP plus APD had lower voice volume than either of the other groups.

The results of these investigations suggest that there are few, if any reliable differences in social skill between the GSP and NGSP subtypes. However, existing data have two significant limitations. First, sample sizes were small and, as a result, statistical power for detecting meaningful differences was low. Second, none of the studies included a non-psychiatric control group. The need for a control group is crucial because even if adults with NGSP demonstrate *better* social skills than those with GSP, this does not indicate that their social skills are unimpaired. Unless both clinical groups are directly compared to a non-psychiatric control group, the issue of social skill deficits in social phobia cannot be answered definitively. Additionally, the use of a group with no disorder would allow for assessment of the clinical, as well as statistical significance of any identified differences. Examination of clinical, as well as statistical, significance would allow for a better understanding of the clinical impact of identified differences, as it relates to social competence and social functioning.

In addition to the heuristic value of determining whether social skills might distinguish one subtype from another, this comparison holds potentially important theoretical and therapeutic implications. Some researchers suggest that NGSP may be better conceptualized as a “fear disorder” similar to a specific phobia where elevated physiological arousal is present in one or more performance situations (e.g., giving a speech). In contrast, GSP or APD are considered “distress disorders” where a broader constellation of symptoms and impairments is present (Carter & Wu, 2010a; Turner, Beidel, Long, & Greenhouse, 1992). Along these lines, it has been proposed that “the main distinction between NGSP and GSP may be that individuals with GSP display interaction anxiety, whereas individuals with NGSP do not.” (Carter & Wu, 2010b; pp.255). As these researchers highlight, this assertion holds important implications for the conceptualization and treatment of NGSP, including whether or not social skills training is a necessary component of treatment.

Some investigators suggest that poor social skill/inadequate social behaviors are a direct *product* of social anxiety and excessive self-focused attention during social interactions (e.g., Clark & Arkowitz, 1975; Clark & Wells, 1995). From this perspective, patients with social phobia possess adequate social skills but their anxiety prevents their ability to focus on social interactions and thus, use skills appropriately. Theoretically then, elimination of social anxiety using either behavioral, cognitive-behavioral or pharmacological intervention should allow social skills to emerge. Overall, the extant database (see Ponniah & Hollon, 2008 for a qualitative review of 30 social phobia treatment studies) indicates that these interventions successfully decrease social fear/anxiety. However, few studies included in that review directly assessed changes in social skill following treatment, leaving the question unanswered. In contrast, when these skills are actually assessed, the relationship does not appear to be that simple. For example, a study comparing youth with social phobia who were treated with fluoxetine or behavior therapy found that fluoxetine decreased social anxiety but did not improve social competence (Beidel et al., 2007). In contrast, the behavioral intervention combining social skills training and exposure decreased social distress and improved social skill (Beidel et al., 2007). Similar outcomes have been reported for adults. A study comparing CBGT and CBGT plus social skills training (Herbert et al., 2005) reported that, for the GSP subtype, social skills training was a useful augmentation strategy for standard CBGT, producing treatment gains that were significantly larger than for CBGT alone. In fact, the combination produced some of the largest effect sizes ever recorded among social phobia treatment studies. These treatment outcome data, albeit indirect, raise important questions about the role of social skills in social phobia with potential implications for both theory and treatment. Thus, there is a need to further investigate the issue of social skill among individuals with different subtypes of the disorder using research designs that examine skills directly.

The purpose of this project was to examine the presence of social skill deficits in adults with either GSP or NGSP, in comparison to each other and to a group of adults with no psychiatric

disorder. Building on the limitations of previous research, comparison utilized different types of social situations and, in addition to variables traditionally examined in the social skills literature, included assessment of specific behaviors that have been identified as problematic for adults with social phobia (Beidel & Turner, 2007). We hypothesized that both social phobia subtypes would manifest social skill deficits when compared to a group with no psychiatric disorder, but that deficits would be more pronounced among those with GSP. Additionally, based on the inclusion of a large sample of individuals with no psychiatric disorder, a second aim of the study was to examine not only statistical, but also the clinical significance of any identified skill differences. Thus, we compared the percentage of adults with both SP subtypes who had clinically significant skill deficits in contrast to the control group with the goal of better informing treatment practices for this population.

Method

Participants

Four hundred sixty-four (464) people responded to recruitment efforts for adults with social phobia and adults with no psychological disorder. Adults with social phobia were referred by area clinicians or newspaper articles/announcements about the availability of a free treatment study for social phobia (following this assessment patients with SP were entered into the treatment protocol) Adults with no disorder were recruited via newspaper advertisements for a research study examining “social interactions” and were financially compensated (\$50.00) for participation. All potential participants were screened via telephone to determine the presence of social phobia and to rule out the presence of another primary Axis I disorder. After the telephone screening; 396 participants were invited to the clinic for a diagnostic interview. Of those participants who were not invited, 62 were excluded because they had a primary Axis I diagnosis other than social phobia, 2 refused to discontinue abusing illegal substances, 3 declined to come to the clinic after hearing the study description, and 1 declined participation because of study time commitments.

At the clinic, potential participants were interviewed by doctoral level psychologists or doctoral students in clinical psychology using the Structured Clinical Interview for DSM-IV (SCID; First, Spitzer, Williams & Gibbons, 1997) and the Structured Clinical Interview for DSM-IV Axis II (SCID-II; First, Gibbons, Spitzer, & Williams, 1997). Participants in the normal control group (NC) did not meet criteria for any current or lifetime Axis I disorder. For the social phobia groups, the diagnosis of social phobia had to be the primary diagnosis. As a result of the diagnostic interview, 17 additional participants were excluded from the protocol because they had a primary diagnosis other than social phobia. Twenty percent of the diagnostic interviews were audio-taped and rated by a second clinician for the purposes of calculating inter-rater reliability. For the diagnosis of social phobia, agreement was excellent ($\kappa=.92$).

Participants were assigned the generalized subtype (GSP) if their fears included most social situations. Participants who met criteria for severe fear in only 1 or 2 situations (public speaking, eating or drinking in front of others, or writing in front of others) were designated as the non-generalized subtype (NGSP). The designation of individuals with severe, but limited social fears as a comparative group is consistent with prior research (e.g., Boone et al., 1999; Heimberg et al., 1990; Turner et al. 1992; Marom et al., 2009). In this investigation, 95% of the NGSP group had public speaking fears only, whereas the other 5% expressed severe fear when speaking and eating/drinking in front of others (i.e., informal settings). All participants with NGSP denied significant fear or functional impairment in typical social interactions such as social conversation. Participants in GSP or NGSP groups could have secondary, comorbid diagnoses, except for schizophrenia, bipolar disorder, mental retardation, or autism spectrum disorders.

Following the diagnostic interview, 379 adults participated in the current study, including 200 adults with no psychiatric disorder (NC), 119 adults with GSP, and 60 adults with NGSP. Participants ranged in age from 18 to 81 years (mean age = 39.11, SD = 14.94; see Table 1). One hundred and seventy-six participants (46.4%) were male, and 203 (53.6%) were female. Fifty-six percent of participants were single, 35% were married, and 9% were divorced or widowed. There were 244 (64.4%) Caucasians, 93 (24.5%) African Americans, 15 (4%) Asians, 14 (3.7%) Latinas/Latinos, 6 (1.6%) from the Indian subcontinent, 1 (0.3%) Middle Easterner, 3 (0.8%) Pacific Islanders, and 3 (0.9%) adults of unknown race/ethnicity.

The groups were significantly different with respect to age; the NGSP group was significantly older than the GSP group ($F(2, 377) = 3.47, p < .05$). The mean age of the NC group fell between and was not significantly different from the other groups (Scheffe' tests, $ps < .05$). The ratio of females to males was significantly larger in the NGSP group than the GSP group ($X^2(df=2) = 6.39, p < .05$). In the NC group, the female to male ratio was evenly distributed (Fisher's exact tests, $p < .05$). Compared to participants in the GSP and NC groups, participants in the NGSP group were significantly more likely to be married ($X^2(df=2) = 14.04, p < .05$) and Caucasian ($X^2(df=2) = 40.15, p < .01$). See Table 1 for group means and percentages. Finally, in comparison to the NGSP group, the GSP group had significantly higher rates of comorbid secondary Axis I (34.5% and 8.3%, respectively, $X^2(df=2) = 14.25, p < .0001$ and Axis II disorders (63% and 10.0%, respectively; $X^2(df=2) = 168.18, p < .0001$; see Table 2 for details).

Measures

Self-report instruments—Participants completed the *Social Phobia and Anxiety Inventory* (SPAI; Turner et al., 1989), which assesses severity of social phobia symptoms across a range of social and performance situations. The SPAI has high test-retest reliability, differentiates patients with social phobia from normal controls and other anxiety patients (Turner et al., 1989), has good concurrent and external validity (Beidel et al., 1989a; 1989b) and is one of the few self-report measures of social phobia that has been shown to reflect both statistically reliable and clinically significant change as a result of treatment (Beidel et al., 1993).

Clinician ratings—Doctoral level clinicians who completed the diagnostic interview also completed the 7 point *Clinical Global Impressions Severity Scale* (CGI; Guy, 1976), and a 9 point Likert rating scale assessing behavioral avoidance. In addition, clinicians administered the Hamilton Rating Scale for Depression (HAM-D; Hamilton, 1960) to all participants with social phobia.

Social skill assessment—Three tasks (see below) were used to provide a comprehensive assessment of social skill. In the social interaction tasks, the participant interacted with a confederate (or confederates) trained to respond to the participant in a friendly but neutral fashion (e.g., interacting with, but not leading, the conversation). In the speech task, three confederates sat silently, looking polite but not being overly encouraging. Each task was introduced by the experimenter who was seated in an adjacent room and directing the assessment over an intercom.

The three tasks selected included different types of social discourse and together, allowed for an assessment of molecular and molar social skill across various social settings. The *Simulated Social Interaction Test* (SSIT; Curran, 1982) is a structured behavioral task that requires the participant to interact with a confederate in 8 role play scenarios. The content of the structured interactions (expression of disapproval or criticism, social assertiveness, confrontation and anger expression, heterosocial contact, interpersonal warmth, conflict or rejection, interpersonal loss, receiving compliments) is based on a factor analysis of situations that tend

to elicit social distress (Richardson & Tasto, 1976). Each scene addressed one content area and lasted approximately three minutes. For each of these 8 scenes, the confederate had 2 standardized responses that were delivered (one at a time) in each scenario. Thus, the examiner read a scenario, the confederate read a prompt, the participant responded, the confederate read a second prompt, and the participant responded. In 4 of the scenes, the participant interacted with a male confederate, and in the other 4 scenes, the interaction was with a female confederate.

Second, there were two *Unstructured Conversation Tasks* (UCT; Turner et al., 1994), one involving interaction with an opposite sex confederate (“pretend you are at a diner party and get to know the person next to you”) and one with a same sex confederate (“you just moved into a new house and see your neighbor in the back yard”). Each scenario was 3 minutes in length (6 minutes total). Unlike the SSIT where a specific context was provided, the UCTs provide only a general scenario. There are no specific prompts and confederates were trained to respond to the participant, but not to assume the burden of the conversation. In addition to assessing for overall skill and anxiety in unscripted conversation tasks, the UCT was used to assess two specific behaviors (task focus and topic transitioning), which have been identified as particularly problematic for people with social phobia.

Third was the *Impromptu Speech Task* (IST). Participants delivered a 10 minute impromptu speech using up to 3 topics (provided by the experimenter). The audience consisted of three members of the research staff. Participants were given 3 minute to prepare their speech after the selection of topics and were allowed to terminate the speech after 3 minutes, by holding up a stop card, if they felt the stress of continuing to speak was too great. Because most people with social phobia endorse at least moderate distress when speaking in public, this task serves as a useful performance-based task regardless of the primary social fear (see Beidel et al., 1989c).

In addition to the ratings by independent observers (described below), each participant rated their own level of anxiety at baseline and after the SSIT, UCT and IST using a 9 point Likert rating scale, where 1=no distress and 9=extreme distress.

Ratings of Behavioral Skills: Assessments were videotaped and rated by independent raters unaware of diagnostic status. Raters were undergraduate students who were trained to criterion by the third author (L.S.). After receiving didactic instruction about social skills, the interaction tasks and the rating scales, each student rated 10 practice tapes. Their reliability was checked against the criterion (established by the first and third author). Once raters achieved reliability above $r=.80$, they rated study tapes independently. Throughout the course of the study, 25% of all assessment videotapes were rated by a second rater in order to determine inter-rater reliability. All reliability coefficients were above $r=.80$.

Each SSIT interaction was rated for participant’s degree of anxiety and skill in each of the content areas (expression of disapproval or criticism, social assertiveness, confrontation and anger expression, heterosocial contact, interpersonal warmth, conflict or rejection, interpersonal loss, receiving compliments) using a 5 point Likert scales. Higher ratings reflected better skill. For anxiety, lower ratings reflected less anxiety (see Appendix A for the specific rating scales and anchor points).

For the UCT, in addition to ratings of an overall skill and anxiety, two specific behaviors were assessed. Because individuals with social phobia experience excessive anxiety that often interferes with their ability to attend to social interactions (i.e., self-focused attention), we assessed participants’ immediate recall of conversational topics as an indication of their ability to focus on the task (i.e., task focus). Specifically, participants were asked to recall the specific

topics of conversation discussed with a confederate. To assess their recall accuracy, undergraduate raters reviewed the videotaped interaction to determine the actual number of topics that were discussed. The topics listed by the participant were summed and scores were calculated as the percent of topics correctly recalled. The second behavior was topic transitioning. Raters assessed the participants' ability to effectively transition from one topic to another during social conversations using a 4 point scale where 1 = poor (e.g., all conversation transitions generated by the confederate) to 4 = excellent (e.g., confidently and smoothly moves from one topic to the next and the topics are logically linked).

For the IST, speech duration was timed (in seconds) and the percentage in each group able to complete the speech was calculated. Similar to the SSIT and UCT, independent raters determined overall skill and anxiety using 5 point Likert scales.

Results

Preliminary analyses

An ANOVA examining group differences on the SPAI confirmed diagnostic classifications ($F(df=2,370)=597.88, p<.0005$). As expected, the NC group had significantly lower scores ($M=23.8$) than either of the SP groups (Scheffe' test, $ps<.05$). The NGSP group also had a significantly lower score than the GSP group ($M=62.9$ vs $M=109.0$, Scheffe' test, $p<.05$). An ANOVA examining baseline self-ratings of anxiety indicated a significant group difference ($F(df=2, 335)=44.42, p<.0005$). Baseline anxiety for the GSP group ($M=3.2$) was significantly higher than either the NGSP ($M=1.9$) or the NC ($M=1.7$) group (Scheffe' test, $ps<.05$) but still in the minimal range.

Since a diagnosis of depression also has been linked to impaired social skills and social behavior (e.g., Lewinsohn, 1974), the 18 patients with GSP who had comorbid secondary depression were excluded from the data analyses. A t-test comparing HAMD scores for the SP groups indicated significantly higher scores among the GSP group (GSP ($M=8.73, sd=3.7$) vs NGSP ($M=2.69, sd=2.3$), $t=8.65$ ($df=157$), $p<.001$). However, group means indicated that both groups endorsed few depressive symptoms (i.e., scores well below a HAMD score of 14 traditionally used as indicative of mild depressive symptoms)¹.

Social Skills Deficits²

All group comparisons were conducted using univariate MANCOVA or ANCOVAs, followed by post hoc analyses using Scheffe tests. Age and sex served as covariates due to group differences.

Simulated Social Interaction Test (SSIT)

Overall Skill and Anxiety: Preliminary analyses (2 [confederate sex] $\times$ 3 [group]) ANOVAs revealed no differences in anxiety or skill ratings based on the sex of the confederate. Thus, to decrease the number of statistical tests and associated experiment-wise error rate, data were collapsed across sex of the confederate. Each of the eight role-play scenes was then designated by two of the study investigators as positive or negative in content, yielding in four positive scenes (social assertiveness, social contact, interpersonal warmth, receiving compliments) and four negative scenes (expression of disapproval or criticism, confrontation and anger

¹In order to ensure that sub-clinical levels of depression did not affect social skill/performance ratings, we re-analyzed all data for the two SP groups while controlling for HAMD scores, in addition to sex and age. The results were identical to the outcome reported for the overall analysis.

²Prior to conducting the analyses comparing GSP vs NGSP vs NC, we compared scores of GSP patients with or without Avoidant Personality Disorder. There were no significant differences on any of the variables between these two groups. Thus, all participants with GSP were treated as a single group.

expression, conflict or rejection, and interpersonal loss). Differences in anxiety and skill during positive interactions as well as anxiety and skill during negative interactions were examined with ANCOVA followed by Scheffe' test post hoc comparisons.

For positive social interaction, there were main effects for group for skill ($F(df=2,335)=64.59$, $p<.0005$) and anxiety ($F(df=2,335)=110.48$, $p<.0005$). Post hoc comparisons revealed that all three groups were significantly different on both variables (Scheffe' tests, $ps<.05$). The NC group was rated as the most skilled ($M=4.0$), followed by the NGSP group ($M=3.7$), and then the GSP group ($M=3.1$). For anxiety, the NC group was rated as the least anxious ($M=2.1$), followed by the NGSP group ($M=2.8$), and then the GSP group ($M=3.2$). See Table 3.

For the negative social interaction, there were significant main effects for group for anxiety ($F(df=2,335)=112.62$, $p<.0005$; see Table 3) and skill ($F(df=2,335)=50.27$, $p<.0005$) and again, post hoc analyses indicate that all three groups were significantly different (Scheffe' tests, $ps<.05$). For skill, the NC group was rated as most skilled ($M=4.1$), followed by the NGSP group ($M=3.8$) and then the GSP group ($M=3.4$). For anxiety, the NC group was rated as the least anxious ($M=2.0$) followed by the NGSP group ($M=2.8$) and then the GSP group ($M=3.2$).

Finally, there was a main effect for group for self rating of anxiety ($F(df=2,335)=151.80$, $p<.0005$). The NC group endorsed the least anxiety ($M=2.6$), followed by the NGSP group ($M=3.9$), and then the GSP group who reported the most anxiety ($M=5.9$; Scheffe' tests, $p<.05$).

Unstructured Conversation Task (UCT)—Preliminary analyses using 2×3 ANOVAs again indicated a non-significant effect for sex of the confederate on any of the UCT dependent variables. Thus, ratings for the two scenes were averaged to create one singular rating for each dependent variable (skill, anxiety, task focus, topic transitioning, self-report of distress). Potential group differences were first analyzed using MANCOVA to reduce the potential number of comparisons. Results indicated a significant main effect for group ($F(df=14,658)=27.55$, $p<.0005$). Thus, each dependent variable was then examined individually using individual ANCOVAs and follow-up Scheffe tests.

Task Focus during Conversations: In line with the notion that high anxiety during the interaction may result in an inability to adequately focus on, and thus recall, the content of social interactions, we examined immediate recall of conversation topics as an indicator of task focus. The results of the ANCOVA revealed a main effect for group ($F(df=2,350)=40.41$, $p<.0005$; see Table 3). Post-hoc analyses indicated that the GSP group recalled significantly fewer topics (78%) than either the NGSP (87%) or NC groups (90%; Scheffe's tests, all $ps<.05$). The latter two groups were not significantly different from each other ($p>.05$).

Topic Transitioning: The ANCOVA revealed a significant main effect for group with respect to appropriate transitions between conversational topics ($F(df=2,335)=77.05$, $p<.0005$; see Table 3). The NC group used more transitioning statements ($M=3.6$) than the NGSP group ($M=3.4$), who in turn used more transitioning statements than the GSP group ($M=2.7$), all $ps<.05$.

Overall Skill and Anxiety: For observer ratings of anxiety, the ANCOVA revealed a main effect for group ($F(df=2,335)=82.55$, $p<.0005$). All three groups were significantly different (Scheffe' tests; $ps<.05$). The NC group was rated as the least anxious ($M=2.1$), followed by the NGSP group ($M=2.7$) and then the GSP group ($M=3.31$), who was rated as most anxious.

For observer rating of skill, the ANCOVA revealed a main effect for group ($F(2,335)=60.94$, $p<.0005$); all three groups were significantly different (Scheffe' tests, $ps<.05$; see Table 3).

The NC group exhibited the most skill ($M=4.2$), followed by the NGSP group ($M=3.9$), followed by the GSP group ($M=3.3$).

Finally, there was a main effect for group for self-rating of anxiety ($F(df=2,335)=138.60$, $p<.0005$). All three groups were significantly different; the NC group reported the least distress ($M=2.1$), followed by the NGSP group ($M=3.2$) followed by the GSP group ($M=5.0$; Scheffe tests, all $ps<.05$).

Impromptu Speech Task—IST variables (including speech duration, observer rating of anxiety, observer rating of skill, and self rating of anxiety) were first analyzed using MANCOVA. The results indicated an overall main effect for group ($F(df=8,664)=34.09$, $p<.0005$), which was followed-up with univariate ANCOVAs and Scheffe' tests.

Speech Length: The ANCOVA revealed a significant group effect for speech length ($F(df=2,335)=28.68$, $p<.0005$). The NC group spoke significantly longer ($M=6.30$) than either the NGSP ($M=4.77$) or GSP groups ($M=4.04$, Scheffe' tests, $ps<.05$). The latter two groups were not differ from each other; see Table 3. With respect to the ability to complete the speech, 24.0% of the NC group was able to do so, whereas only 6.7% of the NGSP and 2.0% of the GSP participants were able to do so ($X^2(df=2)=29.47$, $p<.0005$). The percentage of participants in the NC group was significantly higher than the NGSP or GSP groups, which did not differ from each other (Fishers exact test, $ps<.05$).

Overall Skill and Anxiety: For skill, the ANCOVA revealed a significant main effect for group ($F(df=2,335)=20.80$, $p<.0005$). The GSP group was rated as significantly less skilled ($M=3.15$) than either the NC ($M=3.95$) or NGSP ($M=3.88$) groups (Scheffe tests, $ps<.05$), who were not significantly different from each other.

For observer ratings of anxiety, the ANCOVA revealed a significant main effect for group ($F(df=2,335)=51.18$, $p<.0005$), with significant differences across all three groups; the NC group was rated as the least anxious ($M=2.3$), followed by the NGSP group ($M=2.8$), who in turn were rated as less anxious than the GSP group ($M=3.4$; Scheffe' tests, $ps<.05$).

Finally, the ANCOVA indicated a group effect for self-rating of anxiety ($F(df=2,335)=125.88$, $p<.0005$); the NC group had significantly lower self-ratings of anxiety ($M=3.8$) than either the NGSP ($M=6.5$) or GSP ($M=7.0$) groups ($ps<.05$). The latter two groups were not different from each other.

Clinical Significance of Social Skills Deficits

To determine the clinical significance (CS) of identified social skill deficits, means and standard deviations for the NC group on each skill variable were calculated. Scores that exceeded 2 standard deviations (sd) in the direction of less skill was deemed to represent a clinically significant deviation. The percentage of individuals in each group that exceeded the 2 sd cut-off point was calculated (Jacobson & Truax, 1991). Group differences percentage of participants who fell into the clinically significant range were analyzed with chi square tests, followed by Fisher's exact tests. All results are presented in Table 4.

SSIT Conversation Task

Overall Skill: There were significant group differences for skill during positive interactions ($X^2(df=2)=37.60$, $p<.0005$). Significantly more of the GSP group fell in the CS range (23.7%) than either the NGSP (3.6%) or NC (2.6%) groups (Fisher's exact test; $ps<.05$), who were not significantly different from each other ($p>.05$). There were also significant group differences for skill during the negative interactions ($X^2(df=2)=26.61$, $p<.0005$). Among the GSP

participants, 21.5% had scores in the CS range, which was significantly higher than the NGSP (3.6%) or the NC (4.2%) groups (Fisher's exact test; $ps < .05$), who were not significantly different from each other ($p > .05$).

Unstructured Conversation Task

Task Focus and Topic Transitioning: For task focus (topic recall following social interactions), there was a significant group difference for the percentage of each group with scores in the CS range ($X^2(df=2)=17.22$, $p < .0005$). Significantly more of the GSP group fell into the CS range (18.3%) than the NGSP (9.1%) or NC (3.6%) groups (Fisher's exact test; $ps < .05$), whereas the latter two groups were not different from each other ($p > .05$).

The same pattern emerged for transitioning ability ($X^2(df=2)=75.85$, $p < .0005$). The GSP group percentage had a significantly higher percentage in the CS range (52.7%) when compared to the NGSP (16.4%) or the NC group (7.8%; Fisher's exact tests, all $ps < .05$). The latter two groups were not significantly different from each other.

Overall Skill: There was a significant difference in the percentage of each group who had skill deficits in the CS range ($X^2(df=2)=43.29$, $p < .0005$). More of the GSP group fell in the CS range (23.7%) than the NGSP (1.8%) and NC (2.1%) groups (Fisher's exact tests, all $p < .05$). The latter two groups were not significantly different from each other.

Impromptu Speech Task

Speech Length: There were no differences in the percentage of participants in each group who scored in the CS range on the number of minutes spoken during the impromptu speech ($X^2(df=2)=0.02$, $p > .05$; GSP (2.2%), NGSP (1.8%), NC (2.1%).

Overall Skill: The percentage of participants in each group who scored in the CS range on observer rating of skill was significantly different ($X^2(df=2)=46.05$, $p < .0005$). Significantly more of the GSP (20.4%) fell in the CS range when compared to the NGSP (5.5%) and the NC group (3.1%; Fisher's exact tests, all $ps < .05$). The latter two groups were not significantly different ($p > .05$).

Post-Hoc Analyses: Impact of Social Anxiety on Skill—As noted in the introduction, there is some debate regarding the role of social skill in the clinical presentation of social phobia whereby it has been suggested that poor social skills are a direct result of excessive social anxiety and self-focus rather than a true skill deficiency. Toward informing this theoretical debate, we re-analyzed all skill and behavioral ratings while co-varying for (a) self-report of anxiety and (b) observer ratings of anxiety. The inclusion of these covariates did not affect the results reported above. In each instance, identified group differences remained statistically significant even after co-varying for self and observer rated anxiety.

Discussion

Although a number of investigators have attempted to determine the presence of social skill deficits in individuals with social phobia, existing data are limited by small sample sizes and the lack of appropriate comparison groups (Boone et al., 1999; Heimberg et al., 1990; Herbert et al. 1992; Turner et al., 1992). Comparisons among individuals with the same general disorder (e.g., GSP vs. NGSP) allow for between-subgroup comparisons but do not address the question of whether behavioral deficits exist when compared to individuals who never had a psychological disorder. In addition to providing that frame of reference, the inclusion of a non-psychiatric control group has another advantage; it allows for the determination of clinical, as well as statistical significance, an area heretofore unaddressed in this literature. This study

represents the first attempt to directly compare individuals with two subtypes of SP of sufficient sample size to each other, as well as participants with no disorder. Furthermore, the size of the non-psychiatric control group was sufficiently large to allow assessment of clinical, as well as statistical, significance of any detected skill deficits.

Overall, the results of this investigation indicate that both the NGSP and GSP subtypes displayed deficits in social skill when compared to non-psychiatric controls. During both structured and unstructured social interactions, consistent statistically significant differences emerged across the three groups on global measures of social skill and anxiety, and including both observer and self ratings of anxiety. As expected, the NGSP group demonstrated less social skill and greater anxiety than the NC group, and the GSP group demonstrated even greater deficits in skill and higher levels of anxiety. Thus, while the NGSP individuals were clearly more skilled and less anxious than individuals in the GSP group, they were also judged by observers to be less skilled and more anxious (and rated themselves as more anxious) than people with no psychological disorder. These results suggest that whereas the deficits of the NGSP group are not as pronounced as their counterparts with a broader pattern of fear (i.e., the GSP subtype), blinded observers were still able to detect skill deficiencies and anxious distress that differentiated them from a group that never suffered from SP.

In addition to differences in overall skill, this investigation also assessed two specific behaviors: task focus and transitioning skill. All three groups displayed different abilities with respect to the ability to effectively transition between conversational topics, whereas only the GSP group demonstrated impaired ability to attend to/remember conversational topics. The design of this study, like so many others, is not able to adequately determine whether this attention/task focus deficit results from an excessive self focus, deficits in working and/or short term memory, or their combination (see Clark & Wells, 1995). Nonetheless, it is clear that as anxious distress increases, ability to focus on, and therefore recall, the verbal content of the overall social interaction becomes impaired. Yet, it is important to note that even though individuals with GSP recalled significantly fewer topics than the other two groups, they still recalled 78% of the conversational topics, despite their heightened anxiety. Thus, although less accurate, the GSP group was still able to attend to these social interactions and recalled a majority of the conversational content.

We hypothesized that the NGSP and GSP groups would display different levels of social skill in social interactions, but that they would perform similarly on the speech task, as public speaking fears are uniformly endorsed by both subtypes. Consistent with expectations, both the NGSP and GSP groups reported equally elevated anxiety during the speech, once blinded observer ratings of their distress were equivalent for these two groups. For both categories, the two SP groups were more anxious than the NC group. Furthermore, both SP groups ended their speech significantly earlier than the NC group. Because participants were allowed to end the speech if they felt overwhelming distress, this shorter time to escape is consistent with their higher distress ratings. Yet, for the NGSP group, higher levels of distress did not appear to impact how effectively they delivered the speech. In fact, the NC and NGSP groups were judged as equally skilled, whereas the GSP group was perceived as significantly less skilled. The lack of a significant skill deficit in the NGSP group during this speech task is somewhat surprising since these participants were recruited for their public speaking fear, and their distress in this situation was considerable. On the surface, this finding counters the conceptualization of social skill deficits as solely the result of in-situation anxiety (e.g., Clark & Arkowitz, 1975). Rather, it suggests that despite considerable behavioral and subjective distress, the NGSP group still behaved in a skillful fashion, whereas the GSP group did not. One caveat must be raised here. The assessment paradigm allowed the option to escape, thus it is not clear whether the performance of the NGSP participants would have deteriorated had they not had the option to discontinue the speech.

Both epidemiological and treatment-seeking samples (e.g., Ohayon & Schatzberg, 2010; Regier, Rae, Narrow, Kelber, & Schatzberg, 1998; Schatzberg, Samson, Rothschild, Bond, & Regier, 1998) indicate that a percentage of patients with a primary social phobia diagnosis also have comorbid depression. Because depression can affect social behavior, including social competence (Bellack, Hersen, & Himmelhoch, 1981; Lewinsohn, 1974; Marom, Gilhoa-Schechtman, Aderka, Weizman, & Hermesh, 2009), we eliminated GSP patients who had comorbid depression. Among the rest of the patients with social phobia, few depressive symptoms were endorsed. Nevertheless, we analyzed all outcomes controlling for scores on the HAMD, yet social phobia group differences on ratings of skill and anxiety, and self-ratings of anxiety, remained. An important finding from this study was that statistically significant group differences were evident across the three groups even though none of the participants had a secondary diagnosis of depressive disorder or a substantial number of depressive symptoms. These findings suggest that the skill deficits found among the GSP and NGSP groups are not simply a consequence of comorbid depression or depressive symptoms, but may represent a basic deficit in social competence, perhaps as a result of years of social avoidance and isolation (Beidel & Turner, 2007).

Similarly, the relationship of social anxiety and social skill has yet to be completely disentangled. Despite early recognition that anxiety and skill are orthogonal constructs (Hersen & Bellack, 1977), other investigators (Clark & Arkowitz, 1975; Clark & Wells, 1995) have suggested that people with SP possess adequate social skill but that overwhelming social distress does not allow for the use these skills in social settings. Similarly, the specific effect of social skills training groups as a treatment component is subject to debate (Ponniah & Hollon, 2008). For example, does social skills training actually function to teach effective social behavior or does the experience of speaking with and performing in front of a small group serve to decrease anxiety and allow “latent social skills” to emerge? Of course, these skill-based training groups could teach skills as well as decrease anxiety. Due to its critical importance, we attempted to address this issue by reanalyzing the data controlling for (a) observer ratings of anxiety and (b) self-ratings of anxiety during the three tasks. The identified group differences remained even when controlling for behavioral and subjective ratings of distress during the social interactions. Although these analyses do not definitively answer the question of social skill vs. social anxiety, they do address this issue in an empirical manner using treatment seeking patients with a diagnosis of SP. Combined with treatment outcome studies indicating that social skill deficits remain even when social anxiety is significantly alleviated (Beidel et al., 2007; Turner, Beidel, & Jacob, 1994; van Dam Baggen, 2000), findings from this investigation suggest that decreasing social anxiety alone does not always result in significantly improved social competence.

The second overall aim of this study was to assess the clinical significance of any skill deficits that were detected. Based on a sample of 200 participants with no disorder, we established clinically significant cut-off scores (Jacobson & Truax, 1991) and examined the percentages of participants who fell outside that range. With the exception of impromptu speech length, the percentage of GSP patients who had scores in the clinically significant range was significantly larger than for the NGSP or the NC group for every skill variable. Thus, for a significant percentage of the GSP group, these differences were clinically as well as statistically significant. In contrast, for the NGSP group, there were no variables where the percentage of patients with scores in the clinically significant range exceeded the percentage of the NC group. Therefore, despite their statistical significance, the skill deficits exhibited by the vast majority of the NGSP group were not clinically significant. As noted below, these differences may have implications for intervention (see below).

Findings from this study should be considered in light of some study limitations. First, these social interactions were conducted in a laboratory setting and it is not clear if the interaction

would have been different had it occurred in a typical social setting. Second, although blinded observer ratings of social skill were used, the degree to which self-perceived social skill may be associated with actual behavior was not assessed (e.g., Wallace & Alden, 1995; Rapee & Lim, 1992). Finally, although behavioral assessments were specifically designed to assess molecular aspects of social skill, the extent to which other behaviors not examined in the current study may account for perception of social skillfulness is unknown.

The results of this investigation have implications for treatment planning and implementation. Although one meta-analysis suggested that there was little evidence for the use of social skills training for adults with social phobia (Ponniah & Hollon, 2008), only two studies included in the meta-analysis used social skills training (Stravynski, Marks, & Yule, 1982; Stravynski et al., 2000), thereby rendering this conclusion tenuous. A comparative study not included in that meta-analysis (van Dam Baggen, 2000) compared social skills training and cognitive behavior group therapy (CBGT). Although both interventions were effective, social skills training was superior on measures of social anxiety and social skill, reducing scores on these variables to a level comparable to a norm referenced group. This outcome did not occur for the CBGT group. Another investigation (Herbert et al., 2005) suggested that for the GSP subtype, social skills training was a useful augmentation strategy for standard CBGT, producing treatment gains that were significantly larger than for CBGT alone. In fact, the combination produced some of the largest effect sizes ever recorded among social phobia treatment studies. Thus, the dismissal of social skills training as an efficacious, if not crucial, element for the treatment of SP appears premature.

One way to conceptualize these disparate findings is through the use of prescriptive interventions. Based on the results of this investigation, social skills training may not be necessary for (most) individuals with the NGSP subtype as few demonstrated clinically significant social skill deficits. However, the GSP group had statistically significant social skill deficits and across all variables, 18–52% manifested clinically significant skill deficits. Thus, for this subgroup, social skills training may be an important element of an overall treatment approach.

In summary, the results of this investigation indicate that when engaged in social interactions, some social skills deficits exist among individuals with both social phobia subtypes. Compared to people with no psychiatric disorder, individuals with the NGSP subtype display significant social skills deficits in every day social interactions, but not to the extent of their GSP counterparts. Despite these statistically significant differences, skill deficits identified in the NGSP subtype did not fall into the clinically significant range. In contrast, the GSP group had deficits that were more severe, both in terms of statistical significance and clinical meaningfulness. These findings suggest that for a percentage of individuals with the GSP subtype, social skills training may be a necessary addition to treatment strategies for social phobia.

Acknowledgments

This research was supported by NIMH Grant R01MH062547 to the first author and Samuel M. Turner, Ph.D.

SET

BAT OBSERVER RATING SCALES

UNSTRUCTURED CONVERSATION TASK (UCT)

TRANSITIONING ABILITY

- 1= No follow up at all; all conversation generated by confederate
 2= Moved to a new topic only after awkward period of silence
 3= Ability to change topic but not in a consistent and logical pattern (topics not clearly linked)
 4= Consistently and smoothly moves from one topic to the next (topics logically linked)
-

OVERALL ANXIETY SCALE

- 5 **Severe Anxiety:** Clearly uncomfortable, overt signs of anxiety (hand wringing, sweating, flushing, turning, fidgeting, unable to speak at all).
- 4 **Moderate Anxiety:** Uncomfortable, but able to speak; stuttering, stammering, word finding difficulty. Some other over signs of anxiety (flushing, hand wringing, fidgeting).
- 3 **Mild Anxiety:** Some symptoms of anxiety such as fidgeting, flushing; mild stammering or word finding difficulty; able to clearly interact in a reasonable manner.
- 2 **Not At All Anxious:** No overt signs of anxiety, able to interact well.
- 1 **Animated:** Spontaneous expression of emotions, very engaging, clearly comfortable and in control, effective interactions, no overt signs of anxiety.

OVERALL SKILL SCALE

- 5 **Very Effective:** Good interpersonal skill, carries part of conversation, self discloses, uses appropriate transitioning, enjoys interaction.
- 4 **Effective:** No awkwardness, clearly able to communicate; asks questions, appropriate effort to maintain conversation, no inappropriateness.
- 3 **Moderately Effective:** Mild awkwardness, able to answer questions fully; asks some questions, some degree of fluidity, and moderate effort to keep conversation going; may be somewhat inappropriate.
- 2 **Minimally Effective:** Moderately awkward, answers questions but with few words, asks few if any questions, does little to keep the conversation going.
- 1 **Not Effective At All:** Extremely awkward, barely responds if at all; does not ask questions.

SIMULATED SOCIAL INTERACTION TASK (SSIT)

<u>SCENE</u>	<u>ANXIETY</u>	<u>SKILL</u>
	<u>RATING</u>	<u>RATING</u>
A Confrontation and anger expression		_____
B Conflict and mild rejection		_____
C General conversation		_____
D Refusing an unreasonable request		_____
E Social assertiveness		_____
F Receiving a compliment		_____

G Initiating social contact _____

H Interpersonal warmth _____

OVERALL ANXIETY SCALE

- 5 **Severe Anxiety:** Clearly uncomfortable, overt signs of anxiety (hand wringing, sweating, flushing, turning, fidgeting, unable to speak at all).
- 4 **Moderate Anxiety:** Uncomfortable, but able to speak; stuttering, stammering, word finding difficulty. Some other over signs of anxiety (flushing, hand wringing, fidgeting).
- 3 **Mild Anxiety:** Some symptoms of anxiety such as fidgeting, flushing; mild stammering or word finding difficulty; able to clearly interact in a reasonable manner.
- 2 **Not At All Anxious:** No overt signs of anxiety, able to interact well.
- 1 **Animated:** Spontaneous expression of emotions, very engaging, clearly comfortable and in control, effective interactions, no overt signs of anxiety.

OVERALL SKILL SCALE

- 5 **Very Effective:** Good interpersonal skill, fluidly completes task (expresses anger appropriately, appropriately initiates social contact, etc.) with no help from interpersonal partner
- 4 **Effective:** No awkwardness, although there is some hesitancy, completes task without any inappropriateness.
- 3 **Moderately Effective:** Mild awkwardness, completes task but displays inappropriate speech or behavior
- 2 **Minimally Effective:** Moderately awkward, only completes task with help from interpersonal partner
- 1 **Not Effective At All:** Extremely awkward, is not able to complete task

IMPROMPTU SPEECH TASK RATINGS

OVERALL ANXIETY SCALE

- 5 **Severe Anxiety:** Clearly uncomfortable, overt signs of anxiety (hand wringing, sweating, flushing, turning, fidgeting, unable to speak at all).
- 4 **Moderate Anxiety:** Uncomfortable, but able to speak; stuttering, stammering, word finding difficulty. Some other over signs of anxiety (flushing, hand wringing, fidgeting).
- 3 **Mild Anxiety:** Some symptoms of anxiety such as fidgeting, flushing; mild stammering or word finding difficulty; able to clearly interact in a reasonable manner.
- 2 **Not At All Anxious:** No overt signs of anxiety, able to present well.
- 1 **Animated:** Spontaneous expression of emotions, very engaging, clearly comfortable and in control, effective presentation, no overt signs of anxiety.

OVERALL SKILL SCALE

- 5 **Very Effective:** Good interpersonal skill, presentation is engaging, self

- discloses, uses
appropriate transitioning, enjoys interaction.
- 4 **Effective:** No awkwardness, clearly able to communicate; presents topics and points clearly,
appropriate effort to maintain presentation, no inappropriateness.
- 3 **Moderately Effective:** Mild awkwardness, able to present topic; only some parts appear
disjoined, some degree of fluidity, and moderate effort to keep conversation going; may be
somewhat inappropriate.
- 2 **Minimally Effective:** Moderately awkward, presents topic but with few words; speech is
clearly disjointed and difficult to follow, does little to keep the conversation going.
- 1 **Not Effective At All:** Extremely awkward, barely responds if at all.

References

- Beidel DC, Borden JW, Turner SM, Jacob RG. The Social Phobia and Anxiety Inventory: Concurrent validity with a clinic sample. *Behaviour Research and Therapy* 1989;27:573–576. [PubMed: 2818419]
- Beidel, DC.; Turner, SM. *Shy children, phobic adults: Nature and treatment of social anxiety disorder*. Washington, DC: American Psychological Association Books; 2007.
- Beidel DC, Turner SM, Cooley M. Assessing reliable and clinically significant change in social phobia: Validity of the Social Phobia and Anxiety Inventory. *Behaviour Research and Therapy* 1993;31:332–337.
- Beidel DC, Turner SM, Jacob RG, Cooley MR. Assessment of social phobia: Reliability of an impromptu speech task. *Journal of Anxiety Disorders* 1989;3:149–158.
- Beidel DC, Turner SM, Morris TL. Psychopathology of childhood social phobia. *Journal of the American Academy of Child and Adolescent Psychiatry* 1999;38:643–650. [PubMed: 10361781]
- Beidel DC, Turner SM, Stanley MA, Dancu CV. The Social Phobia and Anxiety Inventory: Concurrent and external validity. *Behavior Therapy* 1989;20:417–427.
- Beidel DC, Turner SM, Sallee FR, Ammerman RT, Crosby LA, Pathak S. SET-C vs. Fluoxetine in the treatment of childhood social phobia. *Journal of the American Academy of Child and Adolescent Psychiatry* 2007;46:1622–1632. [PubMed: 18030084]
- Beidel DC, Turner SM, Young BJ, Ammerman RT, Sallee RF, Crosby L. Psychopathology of adolescent social phobia. *Journal of Psychopathology and Behavioral Assessment* 2007;29:47–54.
- Bellack AS, Hersen M, Himmelhoch J. Social skills training compared with pharmacotherapy and psychotherapy in the treatment of unipolar depression. *American Journal of Psychiatry* 1981;138:1562–1567. [PubMed: 7030090]
- Boone ML, McNeil DW, Masia CL, Turk CL, Carter LE, Ries BJ, Lewin MR. Multimodal comparisons of social phobia subtypes and avoidant personality disorder. *Journal of Anxiety Disorders* 1999;13:271–292. [PubMed: 10372342]
- Bruch MA. Familial and developmental antecedents of social phobia: Issues and findings. *Clinical Psychology Review* 1989;9:37–47.
- Bruch MA, Fallon M, Heimberg RG. Social phobia and difficulties in occupational adjustment. *Journal of Counseling Psychology* 2003;50:109–117.
- Carter SA, Wu KD. Relations among symptoms of social phobia subtypes, avoidant personality disorder, panic and depression. *Behavior Therapy* 2010a;41:2–13. [PubMed: 20171323]
- Carter SA, Wu KD. Symptoms of specific and generalized social phobia: an examination of discriminant validity and structural relations with mood and anxiety symptoms. *Behavior Therapy* 2010b;41:254–265. [PubMed: 20412890]
- Clark JV, Arkowitz H. Social anxiety and self-evaluation of interpersonal performance. *Psychological Reports* 1975;36:211–221. [PubMed: 1121542]

- Clark, DM.; Wells, A. A cognitive model of social phobia. In: Heimberg, RG.; Liebowitz, MR.; Hope, DA.; Schneier, FR., editors. *Social phobia: diagnosis, assessment and treatment*. New York, NY: Guilford Press; 1995.
- Curran, JP. A procedure for the assessment of social skills: The simulated social interaction test. In: Curran, JP.; Monti, PM., editors. *Social skills training: A practical handbook for assessment and treatment*. New York, NY: Guilford; 1982. p. 348-373.
- First, MW.; Spitzer, RL.; Gibbon, M.; Williams, JBW. *Structured Clinical Interview for DSM-IV Axis I Disorders (SCID-I), Clinician Version*. Washington, DC: American Psychiatric Association; 1997.
- First, MW.; Gibbon, M.; Spitzer, RL.; Williams, JBW. *Structured Clinical Interview for DSM-IV Axis II Disorders (SCID-I), Clinician Version*. Washington, DC: American Psychiatric Association; 1997.
- Guy, W., editor. *ECDEU assessment manual for psychopharmacology*. Washington, D.C.: DHEW; 1976.
- Hamilton M. A rating scale for depression. *Journal of Neurology, Neurosurgery, and Psychiatry* 1960;23:50–55.
- Heimberg RG, Hope DA, Dodge CS, Becker RE. *DSM-III-R* subtypes of social phobia: Comparison of generalized social phobics and public speaking phobics. *Journal of Nervous and Mental Disease* 1990;178:172–179. [PubMed: 2307969]
- Herbert JD, Gaudiano BA, Rheingold AA, Myers VH, Dalrymple K, Nolan EM. Social skills training augments the effectiveness of cognitive behavioral group therapy for social anxiety disorder. *Behavior Therapy* 2005;36:125–138.
- Herbert JD, Hope DA, Bellack AS. Validity of the distinction between generalized social phobia and avoidant personality disorder. *Journal of Abnormal Psychology* 1992;101:332–339. [PubMed: 1583228]
- Hersen, M.; Bellack, AS. Assessment of social skills. In: Ciminero, AR.; Calhoun, KS.; Adams, HE., editors. *Handbook for Behavioral Assessment*. New York: John Wiley & Sons, Inc; 1977. p. 509-554.
- Jacobson NS, Truax P. Clinical significance: A statistical approach to defining meaningful change in psychotherapy research. *Journal of Consulting and Clinical Psychology* 1991;59:12–19. [PubMed: 2002127]
- Katzelnick DJ, Kobak KA, DeLeire T, Henk HJ, Greist JH, Davidson JRT, Schneier FR, Stein MB, Helstad CP. Impact of generalized social phobia in managed care. *American Journal of Psychiatry* 2001;158:1999–2007. [PubMed: 11729016]
- Keller MB. The life long course of social anxiety disorder: a clinical perspective. *Acta Psychiatrica Scandinavica* 2003;108 Suppl 417:85–94.
- Kessler RC. The impairments cause by social phobia in the general population: Implications for intervention. *Acta Psychiatrica Scandinavica* 2003;108 Suppl 417:19–27.
- Lewisohn, PM. A behavioral approach to the treatment of depression. In: Freidman, RM.; Katz, MM., editors. *The psychology of depression: Contemporary theory and research*. New York: Wiley; 1974. p. 157-185.
- Marom S, Gilhoa-Schechtman E, Aderka I, Weizman A, Hermesh H. Impact of depression on treatment effectiveness and gains maintenance in social phobia: A naturalistic study of cognitive behavior group therapy. *Depression and Anxiety* 2009;26:289–300. [PubMed: 19170088]
- Ohayon MM, Schatzberg AF. Social phobia and depression: Prevalence and comorbidity. *Journal of psychosomatic research* 2010;68:235–243.
- Ponniah K, Hollon SD. Empirically supported psychological interventions for social phobia in adults: a qualitative review of randomized controlled trials. *Psychological Medicine* 2008;38:3–14. [PubMed: 17640438]
- Rapee RM, Lim L. Discrepancy between self- and observer ratings of performance in social phobics. *Journal of Abnormal Psychology* 1992;101:728–731. [PubMed: 1430614]
- Regier DA, Rae DS, Narrow WE, Kaelber CT, Schatzberg AF. Prevalence of anxiety disorders and their comorbidity with mood and addictive disorders. *British Journal of Psychiatry* 1998;34 Suppl:24–28.
- Richardson FC, Tasto DL. Development and factor analysis of a social anxiety inventory. *Behavior Therapy* 1976;7:453–462.
- Schatzberg AF, Samson JA, Rothschild AJ, Bond TC, Regier DA. McLean Hospital depression research facility: early-onset phobic disorders and adult-onset major depression. *British Journal of Psychiatry* 1998;34 Suppl:29–34.

- Stemberger RT, Turner SM, Beidel DC, Calhoun KS. Social phobia: An analysis of possible developmental factors. *Journal of Abnormal Psychology* 1995;104:526–531. [PubMed: 7673576]
- Stravynski A, Arbel N, Bounader J, Gaudette G, Lachance L, Borgeat F, Fabian J, Lamontagne Y, Sidoun P, Todorov C. Social phobia treated as a problem in social functioning: A controlled comparison of two behavioral group approaches. *Acta Psychiatrica Scandinavia* 2000;102:188–198.
- Stravynski A, Marks I, Yule W. Social skills problems in neurotic outpatients: Social skills training with and without cognitive modification. *Archives of General psychiatry* 1982;39:1378–1385. [PubMed: 7149897]
- Turner SM, Beidel DC, Borden JW, Stanley MA, Jacob RG. Social phobia: Axis I and Axis II correlates. *Journal of Abnormal Psychology* 1991;100:102–106. [PubMed: 2005265]
- Turner SM, Beidel DC, Cooley MR, Woody S, Messer SC. A multicomponent behavioral treatment for social phobia: Social effectiveness therapy. *Behaviour Research and Therapy* 1994;32:381–390. [PubMed: 8192637]
- Turner SM, Beidel DC, Dancu CV, Keys D. Psychopathology of social phobia and comparison to avoidant personality disorder. *Journal of Abnormal Psychology* 1986;95:389–394. [PubMed: 3805504]
- Turner SM, Beidel DC, Long PJ, Greenhouse J. Reduction of fear in social phobics: An examination of extinction patterns. *Behavior Therapy* 1992;23:389–403.
- Turner SM, Beidel DC, Dancu CV, Stanley MA. An empirically derived inventory to measure social fears and anxiety: The Social Phobia and Anxiety Inventory. *Psychological Assessment: A Journal of Consulting and Clinical Psychology* 1989;1:35–40.
- 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]
- van Dam-Baggem R. Group social skills training or cognitive group therapy as the clinical treatment of choice for generalized social phobia. *Journal of Anxiety Disorders* 2000;14:437–451. [PubMed: 11095539]
- Wallace ST, Alden LE. Social anxiety and standard setting following social success or failure. *Cognitive Therapy and Research* 1995;19:613–631.

Table 1

Demographic Data

	GSP (n = 119)	NGSP (n = 60)	Control (n = 200)
	<u>M</u> (sd)	<u>M</u> (sd)	<u>M</u> (sd)
Mean Age	36.29(13.8)	42.15(14.4)	39.82(15.5)
Gender			
Males	57(48.9%)	19(31.7%)	100(50%)
Females	62(52.1%)	41(68.3%)	100(50%)
Race			
African American	23(19.3%)	4(6.7%)	66 (33%)
Asian	7 (5.9%)	2(3.3%)	6(3.0%)
Caucasian	76(63.9%)	53(88.3%)	114 (57%)
Latina/Latino	6(5.0%)	-----	8(4%)
Indian Subcontinent	2(1.7%)	1(1.7%)	3(1.5%)
Other	5(4.2%)	-----	2(1.0%)
Marital Status			
Single	71(59.7%)	23(38.3%)	117(58.5%)
Married	41(34.5%)	32(53.3%)	60(30.0%)
Divorced	6(5.0%)	4(6.7%)	17(8.5%)
Widowed	1(0.8%)	1(1.7%)	6(3.0%)

Table 2

Comorbid Axis I and II Disorders

	GSP (n=119)	NGSP (n=60)	NC (n=200)	X²
Axis I				
Any Axis I Disorder	41 (34.5%)	5 (8.3%)		14.25***
Depressive Disorder/Dysthymia	18 (15.1%)			
Generalized Anxiety Disorder	12 (10.9%)	3 (5.0%)		
Alcohol/Drug Dependence	6 (5.0%)			
Obsessive-Compulsive Disorder	4 (3.4%)			
Specific Phobia	3 (2.5%)	1 (1.7%)		
Axis II				
Any Axis II Disorder	75 (63.0%)	6 (10.0%)	2 (1.0%)	168.18***
Avoidant	69 (58.0%)	1 (1.7%)		53.13***
Obsessive-Compulsive	20 (16.8%)	3 (5.0%)	1 (0.50%)	4.97*
NOS	3 (2.5%)			
Paranoid	2 (1.7%)			
Borderline	2 (1.7%)			
Narcissistic	2 (1.7%)			
Antisocial			1 (0.5%)	

* p<.05;

*** p<.001

Table 3

Means and Standard Deviations of Social Skill Variables

Variable	Controls (n = 200)	SSP (n = 60)	GSP (n = 101)
	<u>M</u> (sd)	<u>M</u> (sd)	<u>M</u> (sd)
Baseline SUDS	1.7(0.9)^a	1.9(1.3)^a	3.2(1.8)^b
<u>SSIT</u>			
Negative scenes			
Anxiety ^{**}	2.0(0.7) ^a	2.7(0.4) ^b	3.1(0.5) ^c
Skill ^{**}	4.1(0.6) ^a	3.8(0.4) ^b	3.3(0.6) ^c
Positive scenes			
Anxiety ^{**}	2.1(0.7) ^a	2.8(0.6) ^b	3.2(0.5) ^c
Skill ^{**}	4.0(0.6) ^a	3.7(0.5) ^b	3.1(0.7) ^c
Self-reported SUDS ^{**}	2.6(1.3) ^a	3.9(1.7) ^b	5.9(1.7) ^c
<u>UCT</u>			
Task Focus (Topic Recall)	90%(0.2) ^a	87%(0.2) ^a	78%(0.2) ^b
Transitioning Ability (scale 1 – 4)	3.7(0.5) ^a	3.4(0.6) ^b	2.7(0.8) ^c
Observer Rating of Skill (scale 1–5)	4.2(0.7) ^a	3.9(0.7) ^b	3.3(0.7) ^c
Observer Rating of Anxiety (scale 1–5)	2.1(0.8) ^a	2.7(0.8) ^b	3.3(0.6) ^c
Self-reported SUDS	2.1(1.2) ^a	3.2(1.9) ^b	5.0(1.6) ^c
<u>Impromptu Speech Task</u>			
Time (Minutes) ^{**}	6.3(2.8) ^a	4.8(2.1) ^b	4.0(1.8) ^b
Anxiety ^{**}	2.3(0.9) ^a	2.8(1.0) ^b	3.4(0.9) ^c
Skill ^{**}	4.0(0.8) ^a	3.9(0.8) ^a	3.1(1.0) ^b
Self-reported SUDS ^{**}	3.8(1.8) ^a	6.5(1.6) ^b	7.0(1.6) ^b
Completed Speech	24% ^a	7% ^b	2% ^b

*
p < .05;**
p < .0005

Superscripts of different values denote means that are significantly different

Table 4

Percentage scoring at least 2 standard deviations away from the NC mean in the direction of skill deficiency

	Controls (n = 200)	SSP (n = 60)	GSP (n = 101)	X²
Simulated Social Interaction Test				
Observer Ratings of Skill				
Positive Scenes	2.6% ^a	3.6% ^a	23.7% ^b	37.60 ^{**}
Negative Scenes	4.2% ^a	3.6% ^a	21.5% ^b	
25.61 ^{**}				
UCT				
Appropriate recall of conversational topics	3.6% ^a	9.1% ^a	18.3% ^b	
17.22 ^{**}				
Transitioning Ability	7.8% ^a	16.4% ^a	52.7% ^b	
75.85 ^{**}				
Observer Ratings of Skill	2.1% ^a	1.8% ^a	23.7% ^b	43.25 ^{**}
Impromptu Speech Task				
Speech Length	2.1% ^a	1.8% ^a	2.2% ^a	0.02
Observer Ratings of Skill	3.1% ^a	5.5% ^a	20.4% ^b	25.50 ^{**}

*
p < .01;**
p < .001

Superscripts of different values denote means that are significantly different