Journal of Consulting and Clinical Psychology
2006, Vol. 74, No. 4, 677–686

Copyright 2006 by the American Psychological Association
0022-006X/06/$12.00 DOI: 10.1037/0022-006X.74.4.677

Internet-Based Self-Help With Therapist Feedback and In Vivo Group Exposure for Social Phobia: A Randomized Controlled Trial

Gerhard Andersson and Per Carlbring
Linköping University

Annelie Holmström
Karolinska Institute

Elisabeth Sparthan, Tomas Furmark, Elisabeth Nilsson-Ihrfelt, and Monica Buhrman
Uppsala University

Lisa Ekselius
Uppsala University Hospital

Sixty-four individuals with social phobia (social anxiety disorder) were assigned to a multimodal cognitive–behavioral treatment package or to a waiting list control group. Treatment consisted of a 9-week, Internet-delivered, self-help program that was combined with 2 group exposure sessions in real life and minimal therapist contact via e-mail. Results were analyzed on an intention-to-treat basis, including all randomized participants. From pre- to posttest, treated participants in contrast to controls showed significant improvement on most measured dimensions (social anxiety scales, general anxiety and depression levels, quality of life). The overall within- and between-groups effect sizes were Cohen's $d = 0.87$ and 0.70, respectively. Treatment gains were maintained at 1-year follow-up. The results from this study support the continued use and development of Internet-distributed, self-help programs for people diagnosed with social phobia.

Keywords: Internet treatment, social anxiety disorder, minimal therapist contact, clinical significance

This document is copyrighted by the American Psychological Association or one of its allied publishers.
This article is intended solely for the personal use of the individual user and is not to be disseminated broadly.

Social phobia (also known as social anxiety disorder) is associated with substantial impairment in quality of life (Safren, Heimberg, Brown, & Holle, 1997) and is highly prevalent (Furmark, 2002). As evidenced by several trials, there are effective psychosocial treatments for social phobia (Heimberg, 2001). However, far from all sufferers seek treatment (Baldwin & Buis, 2004). Barriers to accessing expert assistance include shortage of skilled therapists, long waiting lists, and costs. These barriers particularly disadvantage geographically isolated people, such as those in regional and rural areas where traveling time is an added burden. Another problem is that those with generalized social phobia may not seek therapy because of the fear or embarrassment associated with help seeking (Newman, Erickson, Przeworski, & Dzus, 2003). Therefore, a major challenge is to increase the accessibility and affordability of evidence-based psychological treatments for social phobia.

Printed self-help manuals have been developed to assist people with mental health problems who are unwilling or unable to access professional assistance, although there has been little evaluation of their efficacy (Rosen, Glasgow, & Moore, 2003). A modern alternative to printed self-help manuals is computers (Proudfoot, 2004). Computerized programs have been used for a number of years for assessment, diagnosis, and education (Gruber, Moran, Roth, & Taylor, 2001) but most controversial has been their use for psychological treatment (Proudfoot, 2004). Until recently, computer-mediated therapies have often been offered without any patient–therapist interaction (Marks, Shaw, & Parkin, 1998). There now seems to have been a shift toward individuals using the World Wide Web to administer self-help treatment instructions (Ritterband et al., 2003) in conjunction with some sort of text-based human interaction (e.g., e-mail).

In an attempt to provide cost-effective treatments for common disorders, independent research groups have developed Internet-based cognitive–behavioral interventions for various conditions (Ritterband et al., 2003), including the anxiety disorders (Andersson, Bergström, Carlbring, & Lindefors, 2005). A number of randomized controlled trials have been conducted, all suggesting that Internet-based treatment with minimal therapist contact via e-mail can be effective in treating various conditions (Carlbring & Andersson, 2006).

To our knowledge, the effect of Internet-based treatment for social phobia, in the present context defined as self-help assisted by e-mail support from a clinician, has not been evaluated in a

Gerhard Andersson and Per Carlbring, Department of Behavioural Sciences, Linköping University, Linköping, Sweden; Annelie Holmström, Department of Clinical Neuroscience, Section of Psychiatry, Karolinska Institute, Stockholm, Sweden; Elisabeth Sparthan, Tomas Furmark, Elisabeth Nilsson-Ihrfelt, and Monica Buhrman, Department of Psychology, Uppsala University, Uppsala, Sweden; Lisa Ekselius, Departments of Neuroscience and Psychiatry, Uppsala University Hospital, Uppsala, Sweden.

The study was funded in part by a grant from the Söderström Königska Foundation and the Swedish Research Council. We thank Fredrik Folke and Tomas Parling for conducting 19 Structured Clinical Interviews for *DSM–IV* (SCIDs) and Marie Söderberg for treating 5 Internet patients. We also thank members of the KLARA research group for their assistance in coding SCID protocols. Finally, we thank Ata Ghaderi and Johan Waara for being cotherapists during some of the group exposure sessions, and Johan Westöö for administrative help.

Correspondence concerning this article should be addressed to Gerhard Andersson, Department of Behavioural Sciences, Linköping University, SE-581 83 Linköping, Sweden. E-mail: gerhard.andersson@ibv.liu.se

randomized controlled trial. There have been computer-based treatments for social phobia, such as virtual reality exposure (e.g., Harris, Kemmerling, & North, 2002); however, more comprehensive self-help materials have not been tested. Social phobia could hypothetically be suitable for Internet-based treatment, as the sense of anonymity is high on the Internet (Erwina, Turk, Heimberg, Frescoa, & Hantula, 2004). There has also recently been a move toward individual treatment of social phobia instead of group treatment, which has been the standard cognitive–behavioral treatment format (Clark et al., 2003; Stangier, Heidenreich, Peitz, Lauterbach, & Clark, 2003). However, as the empirical support for pure bibliotherapy for social phobia was lacking, we suspected that the Internet-based treatment may require in vivo exposure sessions to have maximum effect. Therefore, we devised a 9-week treatment of social phobia on the Internet, which was combined with two real-life group exposure sessions. The current state of knowledge suggested that the first step would be to compare the effects of this novel treatment approach with a waiting list control group, as the equivalence between Internet-based treatment, group-based cognitive–behavioral therapy (CBT), individual CBT, or pure self-help booklets based on CBT could not be assumed.

Method

Recruitment and Selection

Participants were recruited by means of newspaper articles in national and regional papers, notices in health magazines, and an Internet link from the home page of the Swedish National Anxiety Association. This was done in the spring of the year 2003. The study protocol was approved by the ethics committee at Uppsala University (Uppsala, Sweden).

A Web page was created for the study, which included general information about CBT and its effects in treating social phobia, an outline of the study, and an application form. We achieved the first selection of participants by using a computerized screening interview that consisted of the Social Phobia Screening Questionnaire (SPSQ; Furmark et al., 1999), the self-rated version of the Montgomery Åsberg Depression Rating Scale (MADRS-S; Svanborg & Åsberg, 1994), and 10 additional questions regarding current and past treatment. Participants who fulfilled the inclusion criteria according to the initial computerized screening were called to a personal interview at the psychology department in which the Structured Clinical Interview for *DSM–IV* (SCID; First, Spitzer, Gibbon, & Williams, 1995) was used to confirm the social phobia diagnosis. Before coming to the interview, they were required to download, print out, sign, and post an informed consent form that should have reached the interviewers before the interview. The SCID involved the questions pertaining to the mood disorders, anxiety disorders (e.g., panic disorder), and substance abuse disorders, to obtain diagnoses of Axis I Disorders. For the diagnosis of avoidant personality disorder, the second version of the SCID was used (First, Gibbon, Spitzer, Williams, & Benjamin, 1997). Generalized versus nongeneralized social phobia was determined on the basis of the ratings on the SPSQ (Furmark et al., 1999). Briefly, at least 5 of 14 social situations should be rated as very unpleasant, and a total score of 30 or above should be obtained (of a total maximum score of 56) for the generalized subtype to be diagnosed. Reliability data for the social phobia and avoidant personality disorder diagnoses were obtained from taped SCIDs of 20 randomly selected participants (31%). The interviews were coded by seven trained SCID interviewers who did not participate in the study. For social phobia, Cohen's kappa was .63, and for avoidant personality disorder, Cohen's kappa was 1.0.

To be included in the study, participants had to meet the following criteria: (a) fulfill the *Diagnostic and Statistical Manual of Mental Disorders* (4th ed.; *DSM–IV*; American Psychiatric Association, 1994) criteria for social phobia according to the SPSQ; (b) be afraid of giving a public speech; (c) have a total score of less than 31 on the MADRS-S depression scale and less than 4 on the suicide item of this scale; (d) undergo no other psychological treatment for the duration of the study and have no history of earlier CBT; (e) if on prescribed drugs for anxiety/depression, dosage had to be constant for 3 months before the start of the treatment, and the patient had to agree to keep the dosage constant throughout the study; (f) have access to a computer with Internet connection; (g) be at least 18 years old; (h) attend an interview that used the SCID; (i) according to the SCID, social phobia had to be considered to be the most severe disorder (primary diagnosis) if other comorbid disorders were present; and (j) not currently meet diagnostic criteria for psychosis or substance abuse. All of the inclusion criteria above, except for the depression total score, are common in treatment studies for social phobia (e.g., Stangier et al., 2003). The addition of the depression-score criterion was motivated by the desire to reduce any risk of treating participants in strong need of additional treatment and specialist consultation for suicidal ideation.

Of the 237 individuals who applied to participate, 163 fulfilled criteria 1–7. The first 100 who were reachable by telephone to decide on a time and date for a personal SCID were included. Of this number, 64 met all 10 inclusion criteria. Figure 1 shows the participant flow, point of randomization, and dropouts at each stage of the treatment.

Materials

All participants had access to a computer with an Internet connection and could print out training instructions, thought records, and other exercise materials. We informed participants about the general risk of unauthorized people intercepting e-mail messages, and we recommended that they use a free online e-mail service that automatically encrypts messages (2,048 bit).

Outcome Measures

The following social anxiety scales constituted the primary outcome measures of the study: the self-report version of the Liebowitz Social Anxiety Scale (LSAS-SR; Baker, Heinrich, Kim, & Hofmann, 2002; Liebowitz, 1987), the Social Phobia Scale (SPS) and Social Interaction Anxiety Scale (SIAS; Mattick & Clarke, 1998), the SPSQ (Furmark et al., 1999), and the Personal Report on Confidence as a Speaker (PRCS; Paul, 1966). In addition, the following secondary measures were used to assess general anxiety, depression, and quality of life: the Beck Anxiety Inventory (BAI; Beck, Epstein, Brown, & Steer, 1988), the MADRS-SR (Svanborg & Åsberg, 1994), and the Quality of Life Inventory (QOLI; Frisch, Cornell, Villanueva, & Retzlaff, 1992). As the validity of Internet-administered questionnaires is not yet clear, all outcome measures were administered on paper (cf. Andersson, Kaldo-Sandström, Ström, & Strömgren, 2003; Buchanan, 2003).

Procedure

Participants, attrition, and intention to treat. The 64 people included after the personal SCID were divided into two groups by a true random-number service (http://www.random.org). After randomization, 2 people (6%) dropped out during the course of the study. Twelve failed to finish all weekly modules in the 9 treatment weeks (38% of original sample), and the mean number of modules completed was 7.5 ($SD = 2.4$). Lack of time was given as the main reason for discontinuing and/or not finishing the treatment according to schedule. However, in accordance with the intention-to-treat paradigm (Newell, 1992), posttreatment data were collected from all participants. Two participants did not return their questionnaires, and their pretreatment scores were carried forward to the posttreatment assessment point. Hence, all 64 participants who were randomized to one of the

This document is copyrighted by the American Psychological Association or one of its allied publishers.
This article is intended solely for the personal use of the individual user and is not to be disseminated broadly.

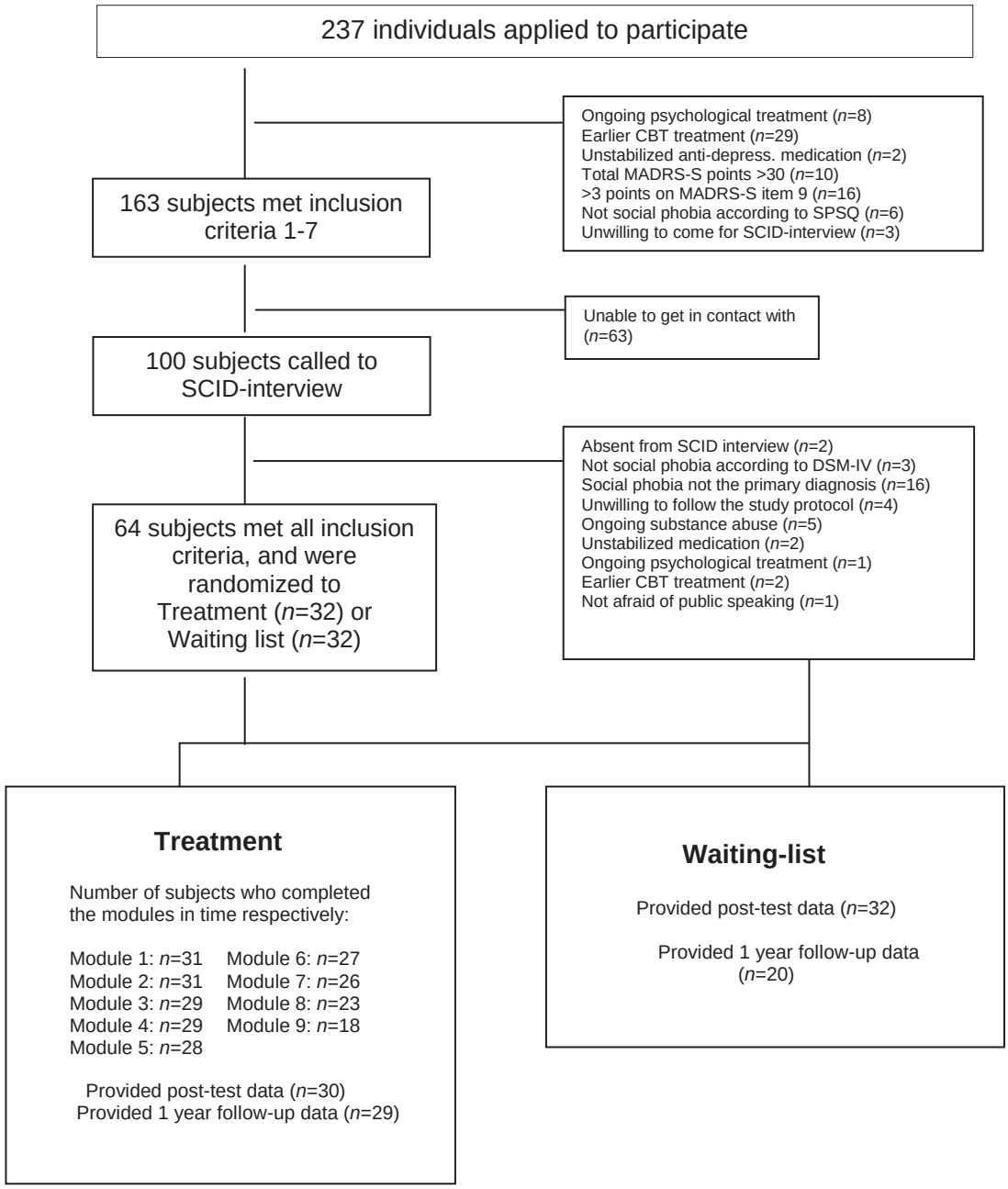

Figure 1. Participant flow, point of randomization, and dropouts at each stage of the study. CBT = cognitive–behavioral therapy; anti-depress. = antidepression; MADRS-S = self-rated version of the Montgomery Åsberg Depression Rating Scale; SPSQ = Social Phobia Screening Questionnaire; SCID-interview = Structured Clinical Interview for *DSM–IV*.

two conditions were included in the statistical analysis. This was regarded as providing sufficient power for later statistical analyses.

The mean age of onset was 14.3 years ($SD = 7.7$), and generalized social phobia was more prevalent than nongeneralized (70.3% vs. 29.7%). In addition, 28.1% had a current avoidant personality disorder. See Table 1 for demographic information. All participants were Swedish citizens. Participants had been screened for comorbid diagnoses, and of the total sample, 12.5% had an ongoing psychiatric disorder in addition to the social phobia. Furthermore, 48.4% had a previous history of psychiatric diagnoses other than social phobia (e.g., panic disorder, major depression).

Treatment was given to the waiting list control group immediately following the initial treatment period. Hence, there was no control group at the 1-year follow-up. At follow-up, all questionnaires were again mailed to each participant, together with a stamped return envelope and an explanatory letter in which the participant's anonymity and integrity was guaranteed. At follow-up, 91% ($n = 29$) of the 32 participants in the treatment condition and 62.5% ($n = 20$) of the control participants returned questionnaires. All participants were given access to two separate moderated online discussion groups (i.e., treatment and control groups could not access each other's discussion groups). This was not part of the interven-

This document is copyrighted by the American Psychological Association or one of its allied publishers.
This article is intended solely for the personal use of the individual user and is not to be disseminated broadly.

Table 1
Demographic Description of the Participants

Variable	Treatment (n = 32)		Control (n = 32)		Total (n = 64)	
	n	%	*n*	%	*n*	%
Gender						
Women	18	56.3	15	46.9	33	51.6
Men	14	43.8	17	53.1	31	48.4
Age						
Mean age (standard deviation)	36.4	9.4	38.2	11.0	37.3	10.2
Minimum–maximum	21–53		18–67		18–67	
Marital status						
Married/living together	21	65.6	21	65.6	42	65.6
Widow	0	0.0	1	3.1	1	1.6
Divorced	4	12.5	2	6.3	6	9.4
Never married	7	21.9	8	25.0	15	23.4
Highest educational level						
Nine-year compulsory school	0	0.0	2	6.3	2	3.1
Secondary school (not completed)	1	3.1	1	3.1	2	3.1
Vocational school (completed)	1	3.1	4	12.5	5	7.8
Secondary school (completed)	8	25.0	7	21.9	15	23.4
College/university (not completed)	7	21.9	5	15.6	12	18.8
College/university (completed)	15	46.9	13	40.6	28	43.8
Employment						
Full time	21	65.6	21	65.6	42	65.6
Part time	1	3.1	3	9.4	4	6.3
Unemployed	2	6.3	2	6.3	4	6.3
Student	8	25.0	4	12.5	12	18.8
Registered sick	0	0.0	0	0.0	0	0.0
Disability pension	0	0.0	1	3.1	1	1.6
Retired	0	0.0	1	3.1	1	1.6
Treatment history						
Sought help before	19	59.4	17	53.1	36	56.3
Earlier psychological treatment	5	15.6	5	15.6	10	15.6
Medication						
When needed	6	18.8	5	15.6	11	17.2
Antidepressive treatment	0	0.0	3	9.4	3	4.7

Note. No significant differences existed between the groups according to chi-square tests.

This document is copyrighted by the American Psychological Association or one of its allied publishers.
This article is intended solely for the personal use of the individual user and is not to be disseminated broadly.

tion, and no treatment instructions were given. However, for participants in the waiting list control group, it meant that they were involved in the trial during their waiting period.

Treatment. The main treatment component was a self-help manual that was adapted for use via the World Wide Web. The treatment was based on established CBT protocols, as described in self-help books (Antony & Swinson, 2000; Butler, 2001; Kåver, 1999; Rapee, 1998), general books and articles on social phobia (Heimberg & Becker, 2002), and from our previous work (e.g., Carlbring, Westling, Ljungstrand, Ekselius, & Andersson, 2001).

The text, consisting of 186 pages, was divided into nine modules. The first module, which introduced the program, portrayed social phobia and its symptoms, proposed possible etiological factors, and described facts about CBT. The second module outlined Clark and Wells's (1995) model for social phobia and the relationship between thoughts, feelings, behavior, and cognitive symptoms. It also defined automatic thoughts and explained how to register them. The third module provided a basic outline of thinking errors/cognitive distortions, the registration of automatic thoughts, and information about how to challenge these. Work with automatic thoughts continued in the fourth module, and behavioral experiments were introduced. Formulation of specific therapy goals was also included in this module. The fifth module covered the principles behind exposure and reality testing, whereas the sixth module concerned self-focus, shifting of focus, attention training, and safety behaviors (cf. Clark & Wells, 1995). The seventh module continued the previous work with exposure. It focused on problems that are commonly encountered during exposure and suggested behavioral experiments. The eighth module concerned listening and conversing skills, nonverbal communication, the ability to say no, and assertiveness. The final module informed the participants about the role of perfectionism, procrastination, self-confidence, and relapse prevention. It then summarized the entire program.

Each module included information and exercises, and it ended with three to eight essay questions. Participants were asked to explain, in their own words, the most important sections of the module they had just completed, to provide thought records, and to describe their experience with and outcome of their exposure exercises. The questions were intended to promote learning and to enable the online therapists to assess whether the participants had assimilated the material and completed their homework. Also included in each module was a multiple-choice quiz that the participants needed to get 95% correct to proceed. Finally, in each module, the participants were required to post a message in a discussion forum about a specific topic.

Feedback on the homework was usually given within 24 hr after participants had sent their answers via e-mail. On the basis of these e-mails, an assessment was made of whether the participant was ready to continue; if so, the password to the next module was sent. If not, the participant received instructions on what to complete before proceeding to the next module. The mean number of modules completed within the treatment time

was 7.5 (SD = 2.4). The average therapist time spent on each participant for providing feedback and writing e-mails was approximately 3 hr, including consultations for supervision and advice and monitoring of the discussion groups.

Exposure sessions. Each participant was invited to come to the Department of Psychology (Uppsala University) for two separate 3-hr group exposure sessions (in conjunction with Modules 4 and 8). The group exposure followed the recommendations of Heimberg and Becker (2002). Each group consisted of 6–8 participants and was led by two therapists.

The first session, which all participants attended, included two relatively easy exposure tasks that incorporated identification and correction of negative automatic thoughts as well as feedback from the therapists and group. The second session included a 5-min oral presentation in front of an audience of about 10–15 people, which was also videotaped. The quality of the presentation and visible signs of nervousness were rated by the audience and by the participants themselves. During the second half of the session, participants watched the videotapes together with the group/therapists and discussed their own perception as compared with the audience's perception of the speech. For the second exposure session, 59% of the participants attended. The reason for nonattendance varied (e.g., travel) but was also due to the difficulty of the exposure.

Therapists. The therapists were three clinical licensed psychologists with research and/or clinical experience with anxiety disorders, two persons with a master's or doctoral degree in clinical psychology, and two persons with 4.5 years of psychologist training (i.e., the last semester of the master's degree program).

Statistical analyses. Significance testing of group differences in demographic data and pretreatment measures was conducted with chi-square and t tests. Participants' pre- and posttreatment measures were analyzed with a multivariate analysis of variance (MANOVA) on the change scores. These were followed by univariate analyses of variance (ANOVAs). Results at 1-year follow-up were pooled across the two groups, as all participants had received treatment, and were analyzed with repeated measures ANOVAs (completer sample). Effect sizes (Cohen's d) were calculated both within and between groups, and all calculations were based on the pooled standard deviation. Clinical significance was determined with the Reliable Change Index for each individual and norms for the outcome measures (i.e., being within two standard deviations of the nonclinical group), which are the criteria used in Jacobson and Truax's (1991) method.

Results

Main Outcome

Results on the social anxiety scales and the secondary measures are presented in Table 2. The two groups did not differ significantly on any of the measures at pretreatment, $t(62) = 0.07–1.90$,

Table 2
Outcome Measures at Each Assessment Point, Including Effect Sizes

	Treatment		Control		
Assessment	*M*	*SD*	*M*	*SD*	Effect size
Liebowitz Social Anxiety Scale					
Pretreatment	68.5	22.5	66.7	20.9	B: 0.73
Posttreatment	45.6	25.1	62.8	21.7	W: 0.91
1-year follow-up	39.0	21.2	46.5	21.5	W-FU: 1.29
Social Phobia Scale					
Pretreatment	35.8	16.7	32.5	13.1	B: 0.67
Posttreatment	20.7	14.8	31.0	15.9	W: 0.96
1-year follow-up	17.8	11.6	24.2	11.8	W-FU: 1.12
Social Interaction Anxiety Scale					
Pretreatment	44.4	16.1	44.8	12.8	B: 0.47
Posttreatment	27.3	13.4	33.9	12.6	W: 1.16
1-year follow-up	24.8	11.1	35.0	13.2	W-FU: 1.09
Social Phobia Screening Questionnaire					
Pretreatment	30.4	8.7	30.2	7.6	B: 1.08
Posttreatment	20.0	8.5	28.9	7.9	W: 1.21
1-year follow-up	17.4	8.2	20.1	6.4	W-FU: 1.50
Personal Report of Confidence as a Speaker					
Pretreatment	25.5	4.2	25.9	3.5	B: 0.55
Posttreatment	22.7	5.4	25.5	4.8	W: 0.58
1-year follow-up	22.1	5.9	23.6	4.3	W-FU: 0.68
Montgomery Åsberg Depression Rating Scale					
Pretreatment	11.1	6.3	14.1	6.6	B: 0.68
Posttreatment	7.0	4.7	10.7	6.2	W: 0.75
1-year follow-up	7.9	5.7	9.4	6.5	W-FU: 0.70
Beck Anxiety Inventory					
Pretreatment	13.6	7.3	13.2	6.6	B: 0.61
Posttreatment	8.7	5.8	13.6	10.3	W: 0.75
1-year follow-up	8.2	6.6	11.2	7.7	W-FU: 0.61
Quality of Life Inventory					
Pretreatment	1.5	1.1	1.1	1.4	B: 0.83
Posttreatment	2.2	1.2	1.1	1.7	W: 0.61
1-year follow-up	2.2	2.1	1.6	2.4	W-FU: 0.43

Note. B = between-groups effect size at posttreatment; W = within-groups effect size for treatment group; W-FU = 1-year follow-up within-groups effect size for total group.

This document is copyrighted by the American Psychological Association or one of its allied publishers.
This article is intended solely for the personal use of the individual user and is not to be disseminated broadly.

p = .95–.07. The social anxiety measures in the study (i.e., LSAS-SR, SPS, SIAS, SPSQ, and PRCS) were all highly correlated (from r = .33 to r = .78, all ps < .05). This was also confirmed by Bartlett's test of sphericity, $\chi^2(14, N = 64) = 179.0$, $p < .001$. The three other measures (i.e., MADRS-S, BAI, and QOLI) were also significantly intercorrelated (from $r = -.39$ to $r = .34$), with the exception of a low correlation between the BAI and the QOLI ($r = -.003$). Therefore the social anxiety measures and the secondary measures were first analyzed with a MANOVA of the change scores and then followed by univariate ANOVAs. The MANOVA for the social anxiety measures revealed a significant between-groups effect at posttreatment, Wilks's $\lambda = .57$, $F(5, 57) = 8.6$, $p < .001$. Univariate effects for the change scores were found for the LSAS-SR, $F(1, 62) = 19.7$, $p < .0001$; SPS, $F(1, 61) = 20.3$, $p < .0001$; SIAS, $F(1, 62) = 4.8$, $p < .05$; SPSQ, $F(1, 62) = 35.5$, $p < .0001$; and PRCS, $F(1, 62) = 5.4$, $p < .05$.

A MANOVA on the change scores for the three secondary measures showed a similar result, Wilks's $\lambda = .57$, $F(5, 60) = 5.5$, $p < .001$. Univariate ANOVAs on the change scores revealed between-groups effects on BAI, $F(1, 62) = 10.3$, $p < .01$, and on QOLI, $F(1, 62) = 10.4$, $p < .01$, but not on MADRS-S, $F(1, 62) = 0.2$, *ns*.

Effect Sizes

The mean within-groups effect size was high at $d = 0.87$. The between-groups effect size (pooled standard deviation) varied across the different measures (see Table 2). The highest value was found on SPSQ (Cohen's $d = 1.1$), whereas the lowest value was found for SIAS ($d = 0.47$). The mean between-groups effect size across all measures was $d = 0.70$. Individual effect sizes are presented in Table 2.

Clinical Significance

Data on clinically significant improvement are presented in Table 3. For consistency between posttreatment and follow-up calculations, the dropouts were not included in the analyses (e.g., results were not analyzed on an intention-to-treat basis). Norms from nonclinical populations were taken from Swedish data sets when available (SPS, SIAS, PRCS, SPSQ, BAI, MADRS-S, and QOLI). Otherwise, normative data from American norms were used (LSAS-SR). As can be seen in Table 3, there were significant between-groups differences in terms of clinically significant improvement on most measures at posttreatment, with the exception of SIAS and MADRS-S. Data for the follow-up period, when all participants had received treatment, showed some deterioration compared with the posttreatment phase, with the exception of LSAS-SR, for which a slight improvement was seen.

1-Year Follow-Up

Of the 32 people in the treatment group, 29 returned follow-up questionnaires. For the control group, 20 responded to the follow-

Table 3
Data for the Proportion of Participants Reaching the Criteria of Clinical Significant Improvement as Defined by Jacobson and Truax (1991)

	Treatment		Control		
Measure	%	*n*	%	*n*	$\chi^2(1)$
Liebowitz Social Anxiety Scale					
Posttreatment	43.3	13	18.7	6	4.4*
1-year follow-up	57.1	28			
Social Phobia Scale					
Posttreatment	56.3	18	25.0	8	6.5**
1-year follow-up	53.0	26			
Social Interaction Anxiety Scale					
Posttreatment	60.0	18	37.5	12	3.1
1-year follow-up	46.9	23			
Social Phobia Screening Questionnaire					
Posttreatment	73.0	22	15.6	5	20.9***
1-year follow-up	69.4	34			
Personal Report of Confidence as a Speaker					
Posttreatment	73.0	22	26.7	8	14.5***
1-year follow-up	54.2	26			
Montgomery Åsberg Depression Rating Scale					
Posttreatment	70.0	21	56.2	18	1.25
1-year follow-up	53.1	26			
Beck Anxiety Inventory					
Posttreatment	63.3	19	37.5	12	4.1*
1-year follow-up	52.1	25			
Quality of Life Inventory					
Posttreatment	66.7	20	34.4	11	6.4*
1-year follow-up	53.1	26			

Note. Results are presented for each group separately at posttreatment and for the groups combined at 1-year follow-up.
* $p < .05$. ** $p < .01$. *** $p < .001$.

This document is copyrighted by the American Psychological Association or one of its allied publishers.
This article is intended solely for the personal use of the individual user and is not to be disseminated broadly.

up. Generally, the treatment effect was stable. Paired *t* tests showed that there were significant differences between pretreatment and follow-up scores, $t(28) = 3.1–8.1$, $p < .005$, but no robust posttreatment to follow-up changes, $t(28) = 0.1–1.7$, $p < .91–.10$. Results are presented for both groups in Table 2. Repeated measures ANOVAs for the pooled sample showed significant pretreatment to follow-up improvements on the LSAS-SR, $F(1, 48) = 87.6$, $p < .0001$; SPS, $F(1, 47) = 66.2$, $p < .0001$; SIAS, $F(1, 48) = 69.0$, $p < .0001$; SPSQ, $F(1, 48) = 88.1$, $p < .0001$; and PRCS, $F(1, 48) = 21.7$, $p < .0001$. On the secondary measures, effects were found on the MADRS-S, $F(1, 48) = 21.2$, $p < .0001$; BAI, $F(1, 48) = 19.5$, $p < .0001$; and QOLI, $F(1, 48) = 11.1$, $p < .01$.

Role of the Second Exposure Session and Number of Modules Completed

As almost half of the participants in the treatment group failed to attend the second in vivo group exposure session, we investigated differential effects by calculating the pre–post effects for the treatment group by only using the second exposure session (yes/no) as a between-groups factor and time (pre–post) as a within-groups factor. Repeated measures ANOVAs showed interaction effects for the SPS, $F(1, 29) = 6.5$, $p = .02$; SIAS, $F(1, 30) = 5.5$, $p = .03$; and PRCS, $F(1, 30) = 10.9$, $p = .003$. There was no interaction for the other measures. In all cases, the group who attended the second exposure benefited more. Higher pretreatment scores were found for the attendees versus the nonattendees of the second exposure ($M = 39.3$ vs. $M = 33.3$ in the attendees vs. nonattendees contrast for the SPS, and $M = 46.9$ vs. $M = 40.8$ for the SIAS). For the SPS and the SIAS, there were no differences at posttreatment, whereas for the PRCS, there was a significant posttreatment effect, $F(1, 30) = 7.7$, $p = .01$, favoring the group who attended the second exposure session ($M = 25.6$ vs. $M = 20.7$ for attendees and nonattendees, respectively).

The importance of the second group exposure for the proportion of participants reaching clinically significant improvement was also investigated. Results were analyzed with chi-square tests. No statistically significant differences were found for the LSAS-SR (44.4% vs. 42.0% for attendees and nonattendees, respectively, reaching the criteria), SPS (58.0% vs. 53.8%), SIAS (63.2% vs. 46.2%), SPSQ (77.8% vs. 66.7%), MADRS-S (72.2% vs. 66.7%), or QOLI (72.2% vs. 58.4%). However, for the PRCS (88.8% vs. 50%), $\chi^2(1, N = 30) = 5.6$, $p = .05$, and BAI (77.8% vs. 41.7%), $\chi^2(1, N = 30) = 4.0$, $p = .05$, results show an advantage for participants who attended both exposure sessions.

Because participants varied in the number of modules completed, correlations between change scores and number of completed modules were calculated. There were significant correlations between number of modules completed and change scores on the SPS ($r = .39$, $p < .05$) and SIAS ($r = .44$, $p < .05$). Other correlations were not significant.

Discussion

The results from the present study support the hypothesis that Internet-based, self-help plus minimal therapist contact via e-mail in conjunction with brief group exposure is a promising new treatment approach for people suffering from social phobia. Typically, participants improved on the self-report scales used, whereas the waiting list participants did not. The treated participants achieved significant improvement on measures of social anxiety, fear, avoidance, depression, and general anxiety. Moreover, overall quality of life was increased. Internet-based treatment had a substantial within-groups effect size ($d = 0.87$), which should be compared with the effect sizes reported in a meta-analysis by Taylor (1996) for placebo ($d = 0.48$), exposure alone ($d = 0.82$), cognitive therapy ($d = 0.63$), social skills training ($d = 0.65$), and cognitive and exposure therapy combined ($d = 1.06$).

In this study, we report the proportion of participants showing clinically significant change on all outcome measures at posttreatment and follow-up. What emerged from these analyses was that approximately half of the treated participants improved on the social phobia measures, with some differences between the measures (see Table 3). Differences in proportions were statistically significant in favor of the treatment group. The exception was the SIAS. Inspection of Table 3 reveals that 37.5% of the control group showed reliable improvement on the SIAS at posttreatment, which could be an explanation for the lack of significance. As the SIAS is a measure of more generalized social fears it is also notable that the control group showed exactly the same proportion of improved participants on the BAI, which is a more general measure of anxiety symptoms. Another possibility is that the treatment was effective for the more specific social phobia symptoms and not much better than the control condition on the more general symptoms. However, the relatively high response rate for the waiting list group on the SIAS, BAI, and MADRS-S might also indicate a nonspecific effect of taking part in the trial before receiving any treatment. In addition, the control group did participate in an online discussion group, which could be regarded as an intervention. The overall picture from the social phobia measures and the secondary outcome measures is that the treatment leads to improvement for a noteworthy proportion of the participants. This also appears to be true at 1-year follow-up. However, as reporting of clinically significant change is not yet standard in the reporting of treatment trials (Fidler et al., 2005), we have little data with which to compare our findings. For example, in Clark et al.'s (2003) trial, we could not find any comparable figures for the proportion of clinically significantly improved participants.

It could be that attending the second group exposure session was crucial for the outcome. Participants who did attend had significantly higher change scores on SPS, SIAS, and PRCS compared with those who did not attend; however, on the SPS and the SIAS, they also had higher pretreatment scores. As to the reason for not attending overlaps with severity of the condition, we cannot exclude the possibility that the better outcome was related to severity of the disorder and not attending the second exposure session per se. However, in a recent review of the social phobia treatment literature, initial severity was not related to more favorable outcome (Rodebaugh, Holaway, & Heimberg, 2004). The analyses of the proportion of clinically, significantly improved participants among the attendees and nonattendees revealed more. Although there were few statistically significant differences, results on the PRCS and the BAI show an advantage for the attenders of the second exposure. The stated reasons for not being present were mainly that the step from the first to the second group exposure session was too great. However, given the finding of more severity in the attendees it might be that motivation to face the fears was

This document is copyrighted by the American Psychological Association or one of its allied publishers.
This article is intended solely for the personal use of the individual user and is not to be disseminated broadly.

lower in the less severe group who failed to attend the second exposure session. Hence, fine tuning the exposure exercises—and possibly matching participants to exposure at their level of severity, in conjunction with motivating people to participate—could prove important in the future. Exposure was, however, included in the Internet part of the treatment program in terms of exercises and participation in the online discussion group. Hence, all participants received at least one in vivo group exposure and had to comply with the instruction to participate in the online discussion group to proceed. On the basis of the results, the picture to emerge is somewhat mixed, but the safest conclusion is that the second in vivo exposure session was important, if not crucial, for obtaining beneficial effects of the treatment.

There are several methodological issues with the present study, which are discussed below. First, we used a waiting list group, which controls for time and assessments but leaves many other questions unanswered, such as specificity of the intervention, placebo effects, and general demoralization in the waiting list group. However, most researchers would agree that novel treatment approaches, in particular treatments that could potentially target a different group of patients (e.g., individuals with social phobia who will not go to a psychiatric clinic), should be evaluated against a treatment as usual waiting list control group first. When the efficacy and safety of the treatment is established, the question of specificity comes next. This relates to a second problem with the study as it investigated a combined treatment with self-help, individual feedback on home-works assignments and two exposure in vivo sessions. Since the completion of this first trial, we have had the opportunity to test the self-help portion of the treatment without the in vivo exposure sessions, and data from an open trial suggest that the exposure sessions are not responsible for the effects (Carlbring, Furmark, Steczkó, Ekselius, & Andersson, 2006). In fact, a very similar outcome was achieved in that trial, with an overall Cohen's *d* effect size of .88 at posttreatment across the same outcome measures used in this study. However, for the present study, it is still a confounder that the participants received a combined treatment and that a substantial proportion received just one exposure session and that 12 participants did not finish all the modules in time. There were indeed substantial differences between the participants in the proportion of treatment modules finished as scheduled, and this was correlated with outcome. It could be that contact via e-mail is not effective enough to stimulate the maintenance of the treatment pace. However, one of the advantages of Internet-based self-help is that the treatment can be done at a time that fits the client's individual schedule. It is possible that the pace of one module per week was too rapid. A majority (83%) of the current study's participants felt that the tempo of the treatment program was too fast in relation to the amount of information that the treatment modules contained. Many participants stated that they would have found 2 weeks to be a more adequate amount of time for completing each module. Yet, having extended time limits or no deadlines at all seems to have disadvantageous effects (cf. Carlbring, Ekselius, & Andersson, 2003). An alternative would be to decrease the amount of material in each module and increase the number of modules. That would give participants more time for in vivo exposures.

The third methodological issue relates to recruitment and diagnosis of participants. In common with other Internet-based treatment studies (e.g., Carlbring et al., 2001), the educational level of the participants was high compared with the educational level of the general population. One in three Swedish adults between the ages of 25 and 64 years has some form of postsecondary education (Statistics Sweden, 2003). That is considerably lower than what was found in the present study, which raises the question of how well the treatment would work with individuals with lower levels of education. However, higher than average educational background is not constrained to participants in Internet interventions; however, this has been seen among psychotherapy clients in general (Lambert, 2004). In the present study, we used the SCID with trained interviewers and a double check of interrater reliability. Surprisingly, reliability of diagnostic procedures is rarely presented in any detail in psychotherapy studies, and because we used the SCID it is therefore difficult to find any data with which to compare our kappa values. Brown, Di Nardo, Lehman, and Campbell (2001) did, however, present reliability data for the Anxiety Disorders Interview Schedule for *DSM–IV*, and in light of their data, our kappa for the social phobia diagnosis is well within the range of what one could expect for agreement using separate interviewers. The kappa for avoidant personality disorder in the present study was excellent with perfect agreement. Mean scores on the self-report inventories also suggested that the sample had symptoms of social anxiety similar to other clinical studies (e.g., Clark et al., 2003) and that the sample deviated markedly (greater than three standard deviations) from the Swedish general population (Furmark, Tillfors, Stattin, Ekselius, & Fredrikson, 2000).

Finally, from a methodological point of view, the study would have benefited from independent assessors of treatment outcome at posttreatment. Obviously, the lack of independent assessors might bias the findings. Being grateful for receiving the program is one possible reason why the treatment group might have reported fewer symptoms at posttreatment in comparison with the control group. This methodological concern was handled in a related study on panic disorder in which blind assessors could confirm the benefits observed from self-report data (Carlbring et al., in press). Clearly, a similar approach should be used in future Internet trials on social phobia.

There is also a need to investigate the optimal level of therapist involvement. In the present study, approximately 3 hr was used in total for each participant in the self-help treatment condition, and in addition to that, the 6 hr devoted to group in vivo exposure should be counted. Maybe short weekly complementary telephone calls could have an additive effect and possibly reduce the time for responding to e-mails. A step in that direction was taken by Richards and Alvarenga (2002), who contacted the participants in a panic disorder trial by telephone to monitor progress and answer any questions that may have arisen. Buhrman, Fältenhag, Ström, and Andersson (2004) used the same approach in a study on chronic pain, resulting in a very low dropout rate. Although more costly in the short term, these benefits might outweigh the disadvantages in the long run. However, in a randomized trial on the treatment of headache, no differences were found between participants who received weekly telephone calls in addition to the Internet-based, self-help treatment and those who did not (Andersson, Lundström, & Ström, 2003). The effects of telephone calls may vary across target disorders, and the same might yield the need for e-mail correspondence and online support.

Apart from possible cost-effectiveness, one of the major advantages of Internet-based, self-help therapy is the possibility that it

This document is copyrighted by the American Psychological Association or one of its allied publishers.
This article is intended solely for the personal use of the individual user and is not to be disseminated broadly.

offers of treating people who would not otherwise seek or reach treatment. However, by asking participants to come to a selection interview in which the SCID was conducted, self-selection bias for the treatment applications via Internet may have been introduced. This may be important in view of the high proportion of patients not asking for professional help and may limit the inferences about the intended population. Furthermore, the exclusion of participants if they were in imminent need of psychiatric treatment because of suicidality may have resulted in low severity overrepresentation in the sample. However, the means on the pretreatment measures are comparable with the norms of a social phobia population (Antony, 2001; Orsillo, 2001).

Internet-based treatment should be viewed as a complement and not as a substitute for traditional CBT. Haaga (2000) has suggested that not all patients need the same type and intensity of intervention. Some patients may be helped greatly by reading a self-help book, watching an instructional video, or using a computer program. Others could benefit from a brief psychoeducational group conducted by a paraprofessional, and still others may require long-term individual treatment from a highly trained professional therapist with specialized expertise. A stepped-care model for depression already exists that includes a self-administered treatment component (Scogin, Hanson, & Welsh, 2003). A similar model for social phobia, backed up by empirical findings, would be welcome.

Finally, future research will need to establish the role of therapist-led exposure sessions in association with Internet-delivered self-help. Although the present intervention mainly relied on self-administration of exercises, reading, and online group discussions, the role of the therapist should not be neglected. Therapist behavior in Internet-based treatment is a new venue for psychotherapy research with very few studies conducted (e.g., Cook & Doyle, 2002). Potentially, combined treatments, including more therapist contact, would be suitable for participants not responding to self-help, but even so, the results from this outcome study suggest that group exposure in vivo with a therapist might not be as important as stated in published treatment protocols (e.g., Heimberg & Becker, 2002). Overall, the promising results from Internet-based treatments (and self-help in other formats) challenge clinicians to scrutinize their input as therapists. It also raises questions on what could be handled by means of reading material and contact via telephone or e-mail. Our preliminary findings suggest that the differences between Internet-based, self-help treatment and standard manualized CBT can be rather small (e.g., Carlbring et al., 2005).

In sum, to our knowledge this was the first randomized controlled trial evaluating an Internet-based program for social phobia. The results from this study provide support for the continued use and development of Internet-based, self-help programs for social phobia. In particular, a randomized trial of Internet-delivered treatment without any live exposure sessions would be an important next step in research.

References

American Psychiatric Association. (1994). *Diagnostic and statistical manual of mental disorders* (4th ed.). Washington, DC: Author.

Andersson, G., Bergström, J., Carlbring, P., & Lindefors, N. (2005). The use of the Internet in the treatment of anxiety disorders. *Current Opinion in Psychiatry, 18,* 73–77.

Andersson, G., Kaldo-Sandström, V., Ström, L., & Strömgren, T. (2003). Internet administration of the Hospital Anxiety and Depression Scale in a sample of tinnitus patients. *Journal of Psychosomatic Research, 55,* 259–262.

Andersson, G., Lundström, P., & Ström, L. (2003). Internet-based treatment of headache: Does telephone contact add anything? *Headache, 43,* 353–361.

Antony, M. M. (2001). Measures of panic disorder and agoraphobia. In M. M. Antony, S. M. Orsillo, & L. Roemer (Eds.), *Practitioner's guide to empirically based measures of anxiety* (pp. 95–125). New York: Kluwer Academic/Plenum Press.

Antony, M. M., & Swinson, R. P. (2000). *The shyness and social anxiety workbook: Proven techniques for overcoming your fears.* Oakland, CA: New Harbinger Publications.

Baker, S. L., Heinrich, N., Kim, H.-J., & Hofmann, S. G. (2002). The Liebowitz Social Anxiety Scale as a self-report instrument: A preliminary psychometric analysis. *Behaviour Research and Therapy, 40,* 701–715.

Baldwin, D. S., & Buis, C. (2004). Burden of social anxiety disorder. In D. S. Bandelow & D. J. Stein (Eds.), *Social anxiety disorder* (pp. 65–74). New York: Marcel Dekker.

Beck, A. T., Epstein, N., Brown, G., & Steer, R. A. (1988). An inventory for measuring clinical anxiety: Psychometric properties. *Journal of Consulting and Clinical Psychology, 56,* 893–897.

Brown, T. A., Di Nardo, P. A., Lehman, C. L., & Campbell, L. A. (2001). Reliability of the *DSM–IV* anxiety and mood disorders: Implications for the classification of emotional disorders. *Journal of Abnormal Psychology, 110,* 49–58.

Buchanan, T. (2003). Internet-based questionnaire assessment: Appropriate use in clinical contexts. *Cognitive Behaviour Therapy, 32,* 100–109.

Buhrman, M., Fältenhag, S., Ström, L., & Andersson, G. (2004). Controlled trial of Internet-based treatment with telephone support for chronic back pain. *Pain, 111,* 368–377.

Butler, G. (2001). *Overcoming social anxiety and shyness—A self-help guide using cognitive behavioral techniques.* London: Constable & Robinson.

Carlbring, P., & Andersson, G. (2006). Internet and psychological treatment: How well can they be combined? *Computers in Human Behavior, 22,* 545–553.

Carlbring, P., Bohman, S., Brunt, S., Buhrman, M., Westling, B. E., Ekselius, L., et al. (in press). Remote treatment of panic disorder: A randomized trial of Internet-based cognitive behavioral therapy supplemented with telephone calls. *American Journal of Psychiatry.*

Carlbring, P., Ekselius, L., & Andersson, G. (2003). Treatment of panic disorder via the Internet: A randomized trial of CBT vs. applied relaxation. *Journal of Behavior Therapy and Experimental Psychiatry, 34,* 129–140.

Carlbring, P., Furmark, T., Steczkó, J., Ekselius, L., & Andersson, G. (2006). An open study of Internet-based bibliotherapy with minimal therapist contact via email for social phobia. *Clinical Psychologist, 10,* 30–38.

Carlbring, P., Nilsson-Ihrfelt, E., Waara, J., Kollenstam, C., Burman, M., Kaldo, V., et al. (2005). Treatment of panic disorder: Live therapy vs. self-help via Internet. *Behaviour Research and Therapy, 43,* 1321–1333.

Carlbring, P., Westling, B. E., Ljungstrand, P., Ekselius, L., & Andersson, G. (2001). Treatment of panic disorder via the Internet: A randomized trial of a self-help program. *Behavior Therapy, 32,* 751–764.

Clark, D. M., Ehlers, A., McManus, F., Hackmann, A., Fennell, M., Campbell, H., et al. (2003). Cognitive therapy versus fluoxetine in generalized social phobia: A randomized placebo-controlled trial. *Journal of Consulting and Clinical Psychology, 71,* 1058–1067.

Clark, D. M., & Wells, A. (1995). A cognitive model of social phobia. In R. G. Heimberg, M. R. Liebowitz, D. A. Hope, & F. R. Schneier (Eds.),

This document is copyrighted by the American Psychological Association or one of its allied publishers.
This article is intended solely for the personal use of the individual user and is not to be disseminated broadly.

Social phobia: Diagnoses, assessment, and treatment (pp. 69–93). New York: Guilford Press.

Cook, J. E., & Doyle, C. (2002). Working alliance in online therapy as compared to face-to-face therapy: Preliminary results. *CyberPsychology & Behavior, 5,* 95–105.

Erwina, B. A., Turk, C. L., Heimberg, R. G., Frescoa, D. M., & Hantula, D. A. (2004). The Internet: Home to a severe population of individuals with social anxiety disorder? *Journal of Anxiety Disorders, 18,* 629–646.

Fidler, F., Cumming, G., Thomason, N., Pannuzzo, D., Smith, J., Fyffe, P., et al. (2005). Toward improved statistical reporting in the *Journal of Consulting and Clinical Psychology*. *Journal of Consulting and Clinical Psychology, 73,* 136–143.

First, M. B., Gibbon, M., Spitzer, R. L., Williams, J. B. W., & Benjamin, L. S. (1997). *SCID-II: Structured Clinical Interview for DSM–IV Axis II Disorders.* Washington, DC: American Psychiatric Press.

First, M. B., Spitzer, R. L., Gibbon, M., & Williams, J. B. W. (1995). *Structured Clinical Interview for DSM–IV Axis I Disorders (SCID-I).* Washington, DC: American Psychiatric Press.

Frisch, M. B., Cornell, J., Villanueva, M., & Retzlaff, P. J. (1992). Clinical validation of the Quality of Life Inventory: A measure of life satisfaction for use in treatment planning and outcome assessment. *Psychological Assessment, 4,* 92–101.

Furmark, T. (2002). Social phobia: Overview of community surveys. *Acta Psychiatrica Scandinavica, 105,* 84–93.

Furmark, T., Tillfors, M., Everz, P. O., Marteinsdottir, I., Gefvert, O., & Fredrikson, M. (1999). Social phobia in the general population: Prevalence and sociodemographic profile. *Social Psychiatry and Psychiatric Epidemiology, 34,* 416–424.

Furmark, T., Tillfors, M., Stattin, H., Ekselius, L., & Fredrikson, M. (2000). Social phobia subtypes in the general population revealed by cluster analysis. *Psychological Medicine, 30,* 1335–1344.

Gruber, K., Moran, P. J., Roth, W. T., & Taylor, C. B. (2001). Computer-assisted cognitive behavioral group therapy for social phobia. *Behavior Therapy, 32,* 155–165.

Haaga, D. A. F. (2000). Introduction to the special section on stepped care models in psychotherapy. *Journal of Consulting and Clinical Psychology, 68,* 547–548.

Harris, S. R., Kemmerling, R. L., & North, M. M. (2002). Brief virtual reality therapy for public speaking anxiety. *CyberPsychology & Behavior, 5,* 543–550.

Heimberg, R. G. (2001). Current status of psychotherapeutic interventions for social phobia. *Journal of Clinical Psychiatry, 62,* 136–142.

Heimberg, R. G., & Becker, R. E. (2002). *Cognitive–behavioral group therapy for social phobia: Basic mechanisms and clinical strategies.* New York: Guilford Press.

Jacobson, N. S., & Truax, P. (1991). Clinical significance: A statistical approach to defining meaningful change in psychotherapy research. *Journal of Consulting and Clinical Psychology, 59,* 12–19.

Kåver, A. (1999). *Social fobi—Att känna sig granskad och bortgjord* [Social phobia—Feeling scrutinized and made to feel like a fool]. Jyväskylä, Finland: Cura Bokförlag.

Lambert, M. J. (Ed.). (2004). *Bergin and Garfield's handbook of psychotherapy and behaviour change* (4th ed.). New York: Wiley.

Liebowitz, M. R. (1987). Social phobia. *Modern Problems of Pharmacopsychiatry, 22,* 141–173.

Marks, I., Shaw, S., & Parkin, R. (1998). Computer-aided treatments of mental health problems. *Clinical Psychology: Science and Practice, 5,* 151–170.

Mattick, R. P., & Clarke, J. C. (1998). Development and validation of measures of social phobia scrutiny fear and social interaction anxiety. *Behaviour Research and Therapy, 36,* 455–470.

Newell, D. J. (1992). Intention-to-treat analysis: Implications for quantitative and qualitative research. *International Journal of Epidemiology, 21,* 837–841.

Newman, M. G., Erickson, T., Przeworski, A., & Dzus, E. (2003). Self-help and minimal-contact therapies for anxiety disorders: Is human contact necessary for therapeutic efficacy? *Journal of Clinical Psychology, 59,* 251–274.

Orsillo, S. M. (2001). Measures for social phobia. In M. M. Antony, S. M. Orsillo, & L. Roemer (Eds.), *Practitioner's guide to empirically based measures of anxiety* (pp. 165–187). New York: Kluwer Academic/Plenum Press.

Paul, G. (1966). *Insight versus desensitization in psychotherapy: An experiment in anxiety reduction.* Palo Alto, CA: Stanford University Press.

Proudfoot, J. G. (2004). Computer-based treatment for anxiety and depression: Is it feasible? Is it effective? *Neuroscience and Biobehavioral Reviews, 28,* 353–363.

Rapee, R. M. (1998). *Overcoming shyness and social phobia—A step-by-step guide.* Northvale, NJ: Jason Aronson.

Richards, J. C., & Alvarenga, M. E. (2002). Extension and replication of an Internet-based treatment program for panic disorder. *Cognitive Behaviour Therapy, 31,* 41–47.

Ritterband, L. M., Gonder Frederick, L. A., Cox, D. J., Clifton, A. D., West, R. W., & Borowitz, S. M. (2003). Internet interventions: In review, in use, and into the future. *Professional Psychology: Research and Practice, 34,* 527–534.

Rodebaugh, T. L., Holaway, R. M., & Heimberg, R. G. (2004). The treatment of social anxiety disorder. *Clinical Psychology Review, 24,* 883–908.

Rosen, G. M., Glasgow, R. E., & Moore, T. E. (2003). Self-help therapy: The science and business of giving psychology away. In S. O. Lilienfeld & S. J. Lynn (Eds.), *Science and pseudoscience in clinical psychology* (pp. 399–424). New York: Guilford Press.

Safren, S. A., Heimberg, R. G., Brown, E. J., & Holle, C. (1997). Quality of life in social phobia. *Depression and Anxiety, 4,* 126–133.

Scogin, F. R., Hanson, A., & Welsh, D. (2003). Self-administered treatment in stepped-care models of depression treatment. *Journal of Clinical Psychology, 59,* 341–349.

Stangier, U., Heidenreich, T., Peitz, M., Lauterbach, W., & Clark, D. M. (2003). Cognitive therapy for social phobia: Individual versus group treatment. *Behaviour Research and Therapy, 41,* 991–1007.

Statistics Sweden. (2003). *Educational attainment of the population.* Retrieved July 14, 2004, from http://www.scb.se/templates/Publikation____57418.asp#BM1

Svanborg, P., & Åsberg, M. (1994). A new self-rating scale for depression and anxiety states based on the comprehensive psychopathological rating scale. *Acta Psychiatrica Scandinavica, 89,* 21–28.

Taylor, S. (1996). Meta-analysis of cognitive–behavioral treatments for social phobia. *Journal of Behavior Therapy and Experimental Psychiatry, 27,* 1–9.

Received August 26, 2004
Revision received February 16, 2006
Accepted March 13, 2006 ■

This document is copyrighted by the American Psychological Association or one of its allied publishers.
This article is intended solely for the personal use of the individual user and is not to be disseminated broadly.