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STANDARD VERSUS EXTENDED COGNITIVE BEHAVIOR THERAPY FOR SOCIAL ANXIETY DISORDER: A RANDOMIZED-CONTROLLED TRIAL

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Abstract. Although cognitive behavior therapy (CBT) has been shown to be generally effective in the treatment of social anxiety disorder (SAD), not all individuals respond to treatment, and among those who do respond the degree of improvement is sometimes far from optimal. Little research has examined the impact of variations in the format of treatment delivery in this area. Participants were randomly assigned to either a standard, 12-session CBT program for generalized SAD in which treatment was delivered in successive weekly sessions (standard treatment) or a similar program in which the 12 sessions were delivered over 18 weeks (extended treatment). Intent-to-treat analyses revealed that the standard treatment program resulted in superior outcome in terms of self-rated symptom and impairment levels, categorical ratings of responder status, and lower dropout rates. Analyses of treatment completers only revealed comparable gains between the two conditions by post-treatment. However, the standard treatment condition revealed a more rapid improvement in magnitude initially. These findings suggest no benefit from extending the course of CBT treatment over a greater length of time, and suggest that such extension may in fact substantially increase the likelihood of premature termination.

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Introduction

Social anxiety disorder (SAD), also known as social phobia, is characterized by extreme fear and avoidance of interpersonal and performance situations. The disorder is quite common, with lifetime prevalence estimates of up to 13.3% (Kessler et al., 1994). Left untreated, SAD typically follows a chronic, unremitting course, and is associated with significant distress and impairment in functioning (for recent reviews of SAD, see Herbert & Dalrymple, in press; Hofmann & Barlow, 2002; Hofmann & DiBartolo, 2001; Kashdan & Herbert, 2001; McLean & Woody, 2001).

Although the etiology of SAD remains unclear, the past two decades have witnessed significant advances in the treatment of the disorder. Several variations of behavior therapy and cognitive behavior therapy (CBT) have been shown to be effective, including various combinations of exposure procedures, social skills training, and cognitive restructuring (Cohn & Hope, 2001; Heimberg, 2002). The most extensively researched treatment program to date was developed by Heimberg and colleagues (Heimberg, 1991; Heimberg & Becker, 2002), and integrates simulated exposure exercises with cognitive restructuring. The program is typically conducted in a group format over 12 consecutive weeks. Research suggests that at least some persons with SAD exhibit problems with social skills (Norton & Hope, 2001; Stopa & Clark, 1993), and social skills training has been shown to be an effective treatment for SAD (Stravynski, Marks, & Yule, 1982; Wlazlo, Schroeder-Hartwig, Hand, Kaiser, & Münchau, 1990). Turner and colleagues provided promising data for social effectiveness therapy, which integrates exposure and social skills training, and which is delivered in a combination of group and individual formats (Turner, Beidel, Cooley, Woody, & Messer, 1994). Our group has reported promising results for a program that integrates social skills training into Heimberg's cognitive restructuring and exposure protocol (Herbert et al., 2003; Herbert, Rheingold, & Goldstein, 2002).

Although CBT programs for SAD are generally effective, they are far from perfect. Most individuals continue to experience residual symptoms and impairment following treatment, and a significant minority fail to respond. One possible means of improving treatment outcome might be to modify the format and other parameters of treatment delivery. To date, relatively little research has examined this issue. Gould, Buckminster, Pollack, Otto and Yap (1997) found no difference in the mean effect sizes of studies of group and individual CBT for SAD. Likewise, Lucas (1994) found comparable effects in a study directly comparing individual and group versions of CBT for SAD. In addition, in a recent pilot study we found surprisingly strong effects of a brief, 6-week CBT program (Herbert et al., 2002); similar results were recently reported by Wells and Papageourgiou (2001). Although we are aware of no other studies directly addressing dose-response effects in the psychotherapeutic treatment of SAD in particular, a large literature exists on this subject with respect to psychotherapy in general. The findings of this literature are mixed, and an exhaustive review of the literature is beyond the scope of this paper. Several studies using naturalistic designs suggest a positive relationship between the amount of treatment received and outcome (e.g. Hansen, Lambert, & Forman, 2002; Kadera, Lambert, & Andrews, 1996; Seligman, 1995; Simpson, Joe, & Brown, 1997), whereas other studies, especially those using experimental designs, have not found a clear

relationship between quantity of psychotherapy and outcome (e.g. Turner, Valtierra, Talken, Miller, & DeAnda, 1996).

In addition to variations in the content of psychotherapy protocols, variations in the process by which they are delivered might affect treatment outcome. For example, the schedule by which a given number of sessions are delivered might impact outcome. Psychotherapy is most commonly delivered in consecutive weekly sessions. There are, of course, exceptions to this general rule. Traditional psychoanalysis entails several sessions per week, and some forms of behavior therapy (e.g. exposure and ritual prevention for obsessive compulsive disorder; Foa, Steketee, Grayson, Turner, & Latimer, 1984; Franklin et al., 1998) are also often administered according to intensive schedules. In both of these cases, it is believed that the intensive frequency of therapy sessions is necessary to maximize effects. In a world of limited resources for mental health care, the possibility of maximizing the effects of a given amount of treatment by altering the schedule by which it is delivered holds obvious practical implications.

No research has yet examined the optimal delivery schedule of CBT for SAD. Nevertheless, a series of studies has examined the effects of the schedule of treatment delivery for other disorders. Several studies of exposure-based interventions have compared the effects of "massed" to "spaced" exposure in the treatment of various anxiety disorders. Two early studies suggested the superiority of massed exposure (Dua, 1972; Foa, Jameson, Turner, & Paynes, 1980). In contrast, three other studies found no differences between massed and spaced exposure (Grey, Rachman, & Sartory, 1981; Emmelkamp, van Linden Van den Heuvell, Ruphan, & Sanderman, 1989; Chambless, 1990). The discrepancy in the results of these studies is difficult to interpret in light of the differences in types of samples studied, as well as the wide range of what constituted the massed versus spaced exposure conditions across the studies. One consistent feature of these studies was the fact that all sessions were evenly spaced in time, regardless of condition. In other words, in both the massed and spaced conditions the inter-session interval was the same throughout the course of treatment.

Based on theoretical work of Bjork and Bjork (1992), Craske and colleagues have hypothesized that an expanding-spaced format, in which the interval between treatment sessions increases over the course of treatment, might lead to greater treatment gains, particularly in terms of relapse prevention. Craske and colleagues have conducted three studies investigating the expanding-spaced hypothesis in analogue phobic samples. Although both Rowe and Craske (1998), and Tsao and Craske (2000) found greater effects of expanding-spaced exposure relative to massed exposure, Lang and Craske (2000) failed to replicate these results. Moreover, Tsao and Craske did not find expanding-spaced exposure superior to fixed-interval spaced exposure. Limitations of this line of research include the exclusive use of analogue samples, unusual and inconsistent intervals between sessions across the studies, and treatment procedures with limited external validity (e.g. the absence of homework exercises).

Thus, the available data on variations in the schedule by which interventions are delivered are limited to studies of exposure alone, rather than the more comprehensive treatment programs that typify the treatment of SAD. In addition, the results of these studies have been inconsistent.

The question of the optimal spacing of psychotherapy sessions is also of practical relevance. A frequent criticism of randomized controlled trials (RCTs) of psychotherapy is that they are conducted in a manner that is inconsistent with typical clinical practice (Seligman, 1995). For example, in RCTs treatment is typically delivered in evenly spaced, consecutive sessions (usually weekly) for a given number of sessions, then terminated abruptly. In clinical practice, however, therapy is often terminated gradually, with increasing inter-session intervals.

The present study was designed to evaluate the effects of varying the schedule by which treatment is delivered in the CBT of Social Anxiety Disorder. As noted above, a substantial literature supports the efficacy of CBT for SAD. CBT is typically delivered in consecutive weekly sessions for approximately 12 weeks. We hypothesized that treatment gains might be maximized by altering the schedule by which treatment was delivered. We compared a standard, 12-session CBT protocol in which treatment was delivered in consecutive weekly sessions to an extended protocol, also consisting of 12 sessions, but in which the initial block of 6 sessions was delivered in consecutive weeks, followed by the second block of 6 sessions delivered every-other-week. This extended condition was designed to reflect a common pattern in clinical settings, in which weekly psychotherapy is tapered to biweekly sessions during the later phase of treatment. On the one hand, as suggested by Chambless (1990), one might expect that greater spacing of the intervals between sessions would afford greater opportunities to engage in homework sessions, and thereby to consolidate treatment gains. On the other hand, increasing the inter-session interval might result in a loss of momentum, thereby resulting in decreased gains. Therefore, we did not make directional hypotheses, and all analyses used 2-tailed tests.

Method

Participants

Thirty-four individuals were recruited through local media to participate in a treatment study through an urban, university-based research clinic. Twenty-five participants completed the full 12-session treatment protocol; 9 participants terminated treatment before completing all 12 sessions. The sample was comprised of 15 women (44.1%) and 19 men (55.9%), ranging in age from 18 to 57 years ($M = 33.5$, $SD = 11.6$). Seventy-seven percent were Caucasian, and 23% African-American. All participants completed high school, and most (91%) had at least some college education. Seventy-four percent had at least one comorbid mood or anxiety disorder, and 77% met criteria for avoidant personality disorder. In summary, the sample consisted of a generally well-educated group of Caucasian and African-American individuals, many of whom had comorbid disorders in addition to a primary diagnosis of SAD, generalized type.

Potential participants underwent an initial 20-minute structured telephone screening in which the purpose of the study was explained and a brief assessment of current symptoms was obtained. Interested participants were then invited to the clinic and informed consent was obtained. They were then evaluated using the Structured Clinical Interview for the *DSM-IV* (SCID-I/P; First, Spitzer, Gibbon, & Williams, 1996), as well as the Social Phobia section of the Anxiety Disorder Interview Schedule for *DSM-IV* (Brown, Di Nardo, & Barlow, 1994). The Avoidant Personality Disorder section of the Structured Clinical Interview for DSM-IV Personality Disorders (SCID-II; First, Spitzer, Gibbon, Williams, & Benjamin, 1994) was also administered. All participants met DSM-IV criteria for a primary diagnosis of the generalized subtype of SAD, and displayed impairments across a range of social and/or performance domains.

When a comorbid Axis I disorder was present, SAD was judged to be clearly primary to and of greater severity than the secondary diagnosis. Primacy was defined as the disorder with the earliest onset and severity was defined in terms of the level of symptomatology associated with the condition, as well as the degree of impairment attributed to it. Exclusion criteria included

a history of mental retardation, pervasive developmental disorder, organic mental disorder, current substance dependence (within the past 6 months), acute suicide potential, an untreated medical condition that might confuse the diagnosis of an anxiety disorder, or a previous trial of CBT for SAD. The relatively few exclusion criteria resulted in a sample with strong external validity.

Measures

Social Phobia Anxiety Inventory (SPAI). The SPAI (Turner, Beidel, Dancu, & Stanley, 1989) is an empirically derived 45-item scale that assesses the clinical features of SAD. The 32-item Social Phobia subscale of the SPAI (SPAI-SP) was used in this study because this subscale seems to be a better index of social anxiety symptoms than the difference subscale score (Herbert, Bellack, & Hope, 1991). The SPAI has been shown to have good test-retest reliability, internal consistency, discriminant validity, and concurrent and external validity (Beidel, Bordon, Turner, & Jacob, 1989; Beidel, Turner, Stanley, & Dancu, 1989; Herbert et al., 1991; Turner et al., 1989).

Fear Questionnaire (FQ). The FQ (Marks & Mathews, 1979) is a 15-item scale assessing avoidance behaviors associated with social situations, agoraphobia, and blood/injury phobia. The 5-item social phobia subscale was used. The FQ demonstrates high test-retest reliability, good internal consistency, and good discriminant validity (Cox, Parker, & Swinson, 1996; Cox, Swinson, & Parker, 1993; Cox, Swinson, & Shaw, 1991; Michelson & Mavissakalian, 1983; Oei, Moylan, & Evans, 1991; Van Zuuren, 1988).

Brief Version of the Fear of Negative Evaluation Scale (Brief FNE). The Brief FNE (Leary, 1983) is a 12-item measure to assess the negative evaluations of others, based upon the original 30 items from the FNE. The Brief FNE uses a 5-point Likert scale ranging from "not at all" to "extremely characteristic of me" to assess levels of apprehension and expectation of evaluative situations. The Brief FNE correlated very highly ($r = .96$) with the original FNE, and showed good test-retest reliability and internal consistency (Leary, 1983) and good concurrent validity with other measures of social anxiety (Saluck, Herbert, Rheingold, & Harwell, 2000).

Beck Depression Inventory (BDI). The BDI (Beck, & Steer, 1987) is a 21-item inventory assessing symptoms of depression over the past week. The BDI is the most widely used self-report measure of depression, and is supported by an extensive psychometric literature (see Beck, Steer, & Garbin, 1988, for a review).

Behavioral assessment. Three 3-minute behavioral tasks were administered for assessment of social performance. The tasks included (a) a dyadic role play involving a simulated interaction with a stranger; (b) a triadic role play involving an interaction with two strangers; and c) an impromptu speech. Role play tests are commonly used in the behavioral assessment of social anxiety (Glass & Arnkoff, 1989; Herbert, Rheingold, & Brandsma, 2001; McNeil, Ries, & Turk, 1995; Turner, Beidel, & Larkin, 1986). Ratings of skill and anxiety can be obtained from participant reports and ratings of videotapes by external raters. Sufficient reliability and validity for social skills ratings by observers have been found for behavior assessment tasks (Arkowitz, Lichtenstein, McGovern, & Hines, 1975; Beidel, Turner, Jacob, & Cooley, 1989; Merluzzi & Biever, 1987). For this study, the role play interactions and impromptu speech were videotaped and rated by trained independent observers on quality of verbal content, non-verbal

content, and paralinguistic features using 5-point Likert scales. The observers were blind to assessment time point. Interrater reliability was good (kappa = .72 for 63% of the sample). In addition, immediately after each role play task, participants were asked to provide self-ratings of their performance for that task on a 5-point Likert scale ranging from "extremely poorly" to "extremely well".

Subjective Units of Discomfort Scale (SUDS). Immediately prior to each of the behavioral assessments tasks, participants were asked to provide a rating of their level of anxiety on a 0–100 SUD scale, with higher numbers indicating increased anxiety (Wolpe & Lazarus, 1966). Immediately following each task, participants were asked to rate their level of anxiety at that moment, as well as their highest level of anxiety during the task. Reliability of SUDS self-reports of anxiety during impromptu speech tasks has been shown to be adequate (Beidel et al., 1989).

Procedure

Participants were randomly assigned to12 sessions of individual cognitive behavior therapy either administered weekly for a total of 12 weeks (standard treatment group) or administered weekly for 6 weeks and then every other week for the remainder of the sessions for a total of 18 weeks (extended treatment group). Sessions were one-hour long and administered by 5 advanced doctoral candidates in clinical psychology, supervised by the first author, who is a licensed clinical psychologist with substantial experience in the cognitive-behavioral treatment of SAD. Each therapist was assigned an equal number of cases from each experimental condition. Therapists received both weekly individual and group supervision sessions for necessary feedback to be given about adherence to the manual. The treatment protocol was adapted from the program developed by Heimberg (1991), which is typically conducted over 12 or more weeks (Heimberg & Juster, 1995). The Heimberg protocol was modified by the addition of social skills training (SST). The present protocol was similar to a group CBT protocol previously utilized by our group, except that treatment was delivered in an individual therapy format (Herbert et al., 2002). In the first treatment session, participants were provided an overview of a cognitive-behavioral model of SAD. The second session consisted of teaching participants to identify negative cognitions and challenge logical errors in their thinking. The rationale behind SST was explained in the third session, and various relevant social skills were discussed (e.g. eye contact, voice volume, rate of speech). Beginning with session four, participants confronted increasingly difficult feared social situations through simulated exposure exercises conducted in session, and were assigned related homework assignments. Both cognitive restructuring and SST were fully integrated into these exposure exercises.

Both treatment conditions received the same amount of treatment (12 sessions), with the only difference between groups being the time frame in which treatment was delivered. The standard treatment group followed typical clinical trials in this area in which treatment is delivered in consecutive weeks. The extended treatment group was developed to represent more typical community-based delivery of services with frequent time lapses between sessions.

Assessment included various self-report questionnaires, which were administered at pre-treatment, at week 12 (post-treatment for the intensive treatment group and session 9 for the extended treatment group), and at week 18 (6-week follow-up for the intensive treatment group and post-treatment for the extended treatment group). Follow-up self-report measures were

collected via mail 3 months from week 18 for participants in both conditions. Behavioral tasks were also administered at pre-treatment and post-treatment for each condition.

Results

Preliminary analyses

Eight participants dropped out of the extended (18-week) treatment group and one participant dropped out of the standard (12-week) group by post-treatment. A chi square test indicated a significant difference in drop-out rate between the groups, $\chi^2 = 5.44$, $p < .05$. The one participant in the standard condition who prematurely terminated treatment did so approximately halfway through the protocol (i.e. following session 7). Of the 8 participants in the extended condition who dropped out, only 2 dropped out during the first 6 sessions, with the remaining 6 (75%) dropping out during the extended treatment phase. No significant differences were found between treatment completers and those who dropped out on any demographic variables or pretest measure (all $ps > .05$). Moreover, no significant differences were found between the two treatment conditions on any pretest measures, nor on the presence of comorbid Axis I or Axis II disorders (all $ps > .05$). However, visual inspection of the data revealed that the extended treatment group mean was consistently higher on each measure. Therefore, pretest scores for each measure were used as covariates in the main analyses according to recommendations of Behar and Borkovec (2003). Table 1 depicts the descriptive

Table 1. Means (standard deviations) of social phobia self-report measures for intent-to-treat data and completers only

	Intent-to-treat		Completers only	
Measure	12-week group	18-week group	12-week group	18-week group
SPAI-SP				
Pretest	129.42 (36.31)	142.29 (20.87)	128.25 (37.39)	143.36 (22.82)
Week 12	85.16 (45.76)	134.23 (21.48)	74.80 (38.00)	127.62 (18.70)
Week 18	76.71 (47.18)	113.77 (39.56)	61.76 (35.26)	86.01 (34.73)
Week 30	77.16 (44.20)	115.89 (40.49)	–	–
FQ-SP				
Pretest	20.53 (8.07)	23.16 (6.25)	20.50 (8.37)	24.55 (6.88)
Week 12	9.13 (7.09)	19.26 (6.67)	8.39 (6.51)	17.21 (5.56)
Week 18	9.00 (7.05)	15.63 (9.44)	8.10 (5.55)	11.40 (9.83)
Week 30	8.07 (6.37)	16.05 (10.21)	–	–
Brief FNE				
Pretest	41.07 (11.00)	49.00 (9.27)	41.43 (11.32)	47.09 (11.58)
Week 12	35.00 (9.92)	46.26 (8.95)	35.23 (10.23)	40.70 (7.68)
Week 18	32.27 (9.08)	42.58 (12.76)	32.90 (8.84)	36.00 (13.24)
Week 30	30.20 (6.68)	43.53 (12.02)	–	–

Note: SPAI-SP = Social Phobia and Anxiety Inventory-Social Phobia Subscale; FQ-SP = Fear Questionnaire-Social Phobia Subscale; Brief FNE = Brief Version of the Fear of Negative Evaluation Scale; 12-Week Group = Intensive Treatment Group; 18-Week Group = Extended Treatment Group. Means and standard deviations depicted above based on unadjusted raw scores.

statistics calculated using raw scores (before covariate analyses) for both groups at each assessment point.

Self-report measures

Intent-to-treat analyses. Intent-to-treat (ITT) analyses were conducted because the number of participants who failed to complete all assessments precluded the use of repeated measures analyses for all time points. A repeated measures multivariate analysis of covariance (MANCOVA) was computed on the self-report measures for the 34 participants (standard treatment group $n = 15$; extended treatment group $n = 19$) who began treatment. The MANCOVA examined three assessment occasions: weeks 12, 18, and 30. The SPAI-Social Phobia Subscale (SPAI-SP), FQ-Social Phobia Subscale (FQ-SP), and Brief FNE were used as the dependent variables in the analyses. The MANCOVA group main effect [*Wilk's* λ $(3, 27) = .735$, $F = 3.24$, $p < .05$] and the interaction [*Wilk's* λ $(6, 24) = .601$, $F = 2.66$, $p < .05$] were significant. The time main effect was not significant ($p > .05$).

Follow-up analyses of covariance (ANCOVAs) were conducted for each measure. Greenhouse-Geisser corrected values were used when interpreting the SPAI-SP and FQ-SP results, because the Mauchley's Test for Sphericity indicated that the assumption was violated for these measures (ps $< .05$). No significant interactions were found for the SPAI, FQ-SP, or the Brief FNE. However, significant group main effects were found for the SPAI-SP [F $(1, 29) = 10.28$, $p < .01$], FQ-SP [F $(1, 29) = 6.32$, $p < .05$], and Brief FNE [F $(1, 29) = 5.12$, $p < .05$].

Tukey post hoc tests revealed that the extended treatment group had significantly higher scores (i.e. more symptoms of social phobia) relative to the standard treatment condition on each measure at weeks 12, 18, and 30 (all ps $< .05$). Figure 1 depicts the SPAI-SP *adjusted* group means at each time point for ITT data.

A separate ANCOVA was conducted on the BDI scores at weeks 12, 18, and 30, using pretest scores as the covariate. No significant differences were found (all ps $> .05$).

Completers only analyses. Since there was a differential drop out rate between groups, the ITT analyses may have inflated the severity of extended treatment group members who completed treatment since the last obtained score was used for subsequent missing data, which could result in overestimations of psychopathology. Therefore, analyses on the self-report measures also were conducted using only the treatment completers from each group. A repeated measures MANCOVA was computed on the self-report measures for the 25 participants (standard treatment group $n = 14$; extended treatment group $n = 11$) who completed treatment, using pretest scores as covariates. For those participants in the standard treatment group whose data were not obtained at week 18, missing data were replaced by the group mean at that time point. The week 30 (i.e. 3-month follow-up) assessment data were not included in this analysis because of the high attrition rate in both groups at that time point. Therefore, the MANCOVA examined two assessment occasions: weeks 12 and 18. Consistent with the ITT analyses, results revealed a significant interaction [Wilk's λ $(3, 18) = .654$, $F = 3.17$, $p < .05$] and group main effect [Wilk's λ $(3, 18) = .546$, $F = 4.99$, $p < .01$].

However, follow-up analyses revealed a slightly different picture from the ITT analyses. Separate follow-up ANCOVAs were conducted for the SPAI-SP, FQ-SP, and Brief FNE. Significant group main effects were found for the SPAI-SP [F $(1, 20) = 7.05$, $p < .05$] but not for the FQ-SP or Brief FNE (ps $> .05$). Also, significant interactions were found on the

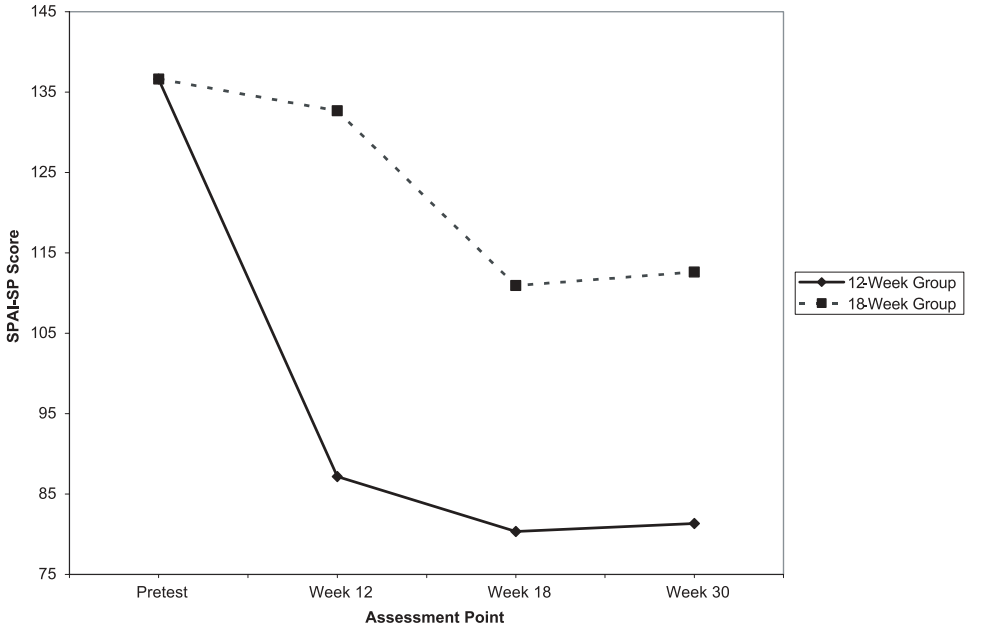

Figure 1. Intent-to-treat: SPAI-SP adjusted means for treatment groups at each assessment point. SPAI-SP = Social Phobia and Anxiety Inventory-Social Phobia Subscale; 12-week group = intensive treatment group; 18-week group = extended treatment group. Means adjusted using pretest score as covariate.

SPAI-SP [F (1, 20) = 9.30, $p < .01$] and FQ-SP [F (1, 20) = 8.24, $p < .01$], but not on the Brief FNE ($p > .05$).

Tukey post hoc tests on the SPAI-SP and FQ-SP revealed that there were significant differences between the groups by week 12 on both measures, but only on the SPAI-SP at week 18 (all ps $< .05$). Specifically, the extended treatment condition was more severe than the standard treatment condition at week 12 on both measures. The extended treatment group was more severe than the standard treatment group at week 18 on the SPAI-SP, but not on the FQ-SP.

Furthermore, Tukey post hoc tests indicated significant differences from week 12 to week 18 for the extended treatment group on the SPAI-SP and FQ-SP but only on the SPAI-SP for the standard treatment group (all ps $< .05$). In other words, the extended treatment group continued to improve from week 12 to week 18 on both measures, whereas the standard treatment group maintained their gains over the same period, improving slightly on the SPAI-SP. Figure 2 depicts the SPAI-SP *adjusted* group means at each time point for treatment completers only.

Behavioral assessments

Separate univariate ANCOVAs were computed on the average self-ratings of performance across role plays and average SUD ratings post-treatment (i.e. week 12 for the intensive treatment condition and week 18 for the extended treatment condition), using pretest scores as covariates. No significant differences were found either in ITT or completers only analyses (all ps $> .05$).

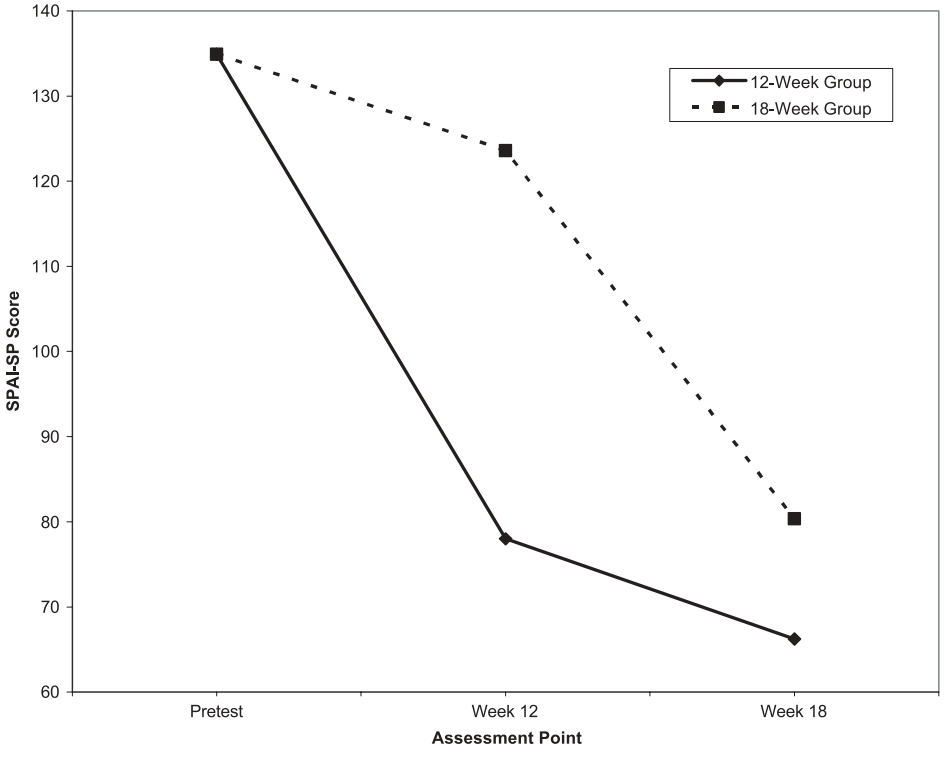

Figure 2. Completers only: SPAI-SP adjusted means for treatment groups at each assessment point. SPAI-SP = Social Phobia and Anxiety Inventory-Social Phobia Subscale; 12-week group = Intensive treatment group; 18-week group = Extended treatment group. Means adjusted using pretest score as covariate.

Assessors blind to treatment condition rated social skills for participants at post-treatment based on video tapes of structured role plays. Data were collected on only a random subsample (standard treatment group $n = 8$; extended treatment group $n = 7$) of participants who completed treatment; therefore, a nonparametric test was computed. Independent samples Mann-Whitney U tests indicated that there were no differences in quality of verbal content, nonverbal content, or paralinguistic features between the groups at post-treatment (all ps $> .05$). These null effects should be interpreted with caution, however, due to the small sample on which these analyses were based.

Effect size changes

Effect sizes (ES) were calculated according to Cohen's d statistic[1] (Cohen, 1988). Table 2 shows ESs based on the SPAI-SP at each time point for both ITT and completers only data. Inspection of the ES data reveals an interesting pattern of results. For ITT analyses,

[1]Cohen's (1988) *d* statistic: $(M_{pre} - M_{post})/SD_{pooled}$, where $SD_{pooled} = [v(SD^2_{pre} + SD^2_{post})/2]$.

Table 2. Effect size changes (Cohen's *d*) on SPAI-SP for intent-to-treat and completers only data

	Assessment point		
	Pretest to week 12	Pretest to week 18	Pretest to week 30
Intent-to-treat			
12-week group	1.07	1.25	0.91
18-week group	0.27	0.64	0.58
Completers only			
12-week group	1.42	1.83	–
18-week group	0.74	1.95	–

Note: SPAI-SP = Social Phobia and Anxiety Inventory-Social Phobia Subscale; 12-Week Group = Intensive Treatment Group; 18-Week Group = Extended Treatment Group.

the standard treatment group showed superior gains at all assessment points relative to the extended treatment group. The standard treatment group showed large ES changes, whereas the extended treatment group showed more moderate gains.

Completers only analyses revealed a somewhat different picture. The standard treatment condition appeared to achieve greater gains by week 12 and continued to improve after treatment was completed. The extended treatment condition did not achieve the same magnitude of gains by week 12, but continued to improve by week 18, achieving similar gains to the standard treatment group by this point. Both groups showed large ES changes at each time point.

In addition, the ES analyses reveal that the magnitude of treatment effects in the present study, which ranged from ESs of.74 to 1.42, compared favorably to other studies of CBT for SAD. For example, on self-report symptom measures, Hope, Herbert and White (1995) reported an ES of 1.13, Heimberg et al. (1998) obtained an ES of .75, and Woody and Adessky (2002) found an ES of .64.

Treatment responders/nonresponders

Responder status was determined by tallying the number of participants in each group who achieved an improvement of at least one standard deviation unit based on their pretest SPAI-SP score (see Figure 3). Results were similar to those based on calculating ES. For ITT analyses, 67% of participants in the standard treatment group were designated responders by week 18, whereas only 42% of those in the extended treatment group achieved similar status. For completer only analyses, the vast majority of participants achieved responder status by week 18 (standard treatment group = 86%; extended treatment group = 90%).

Chi square tests were conducted on the number of responders for each group at weeks 12 and 18 separately for the ITT and completers only datasets. Using the ITT data, results revealed a significantly higher number of responders by week 12 in the standard treatment group (60%) compared to the extended treatment (26%) group, $\chi 2 = 3.93$, $p < .05$. No other significant differences were found (all ps $> .05$).

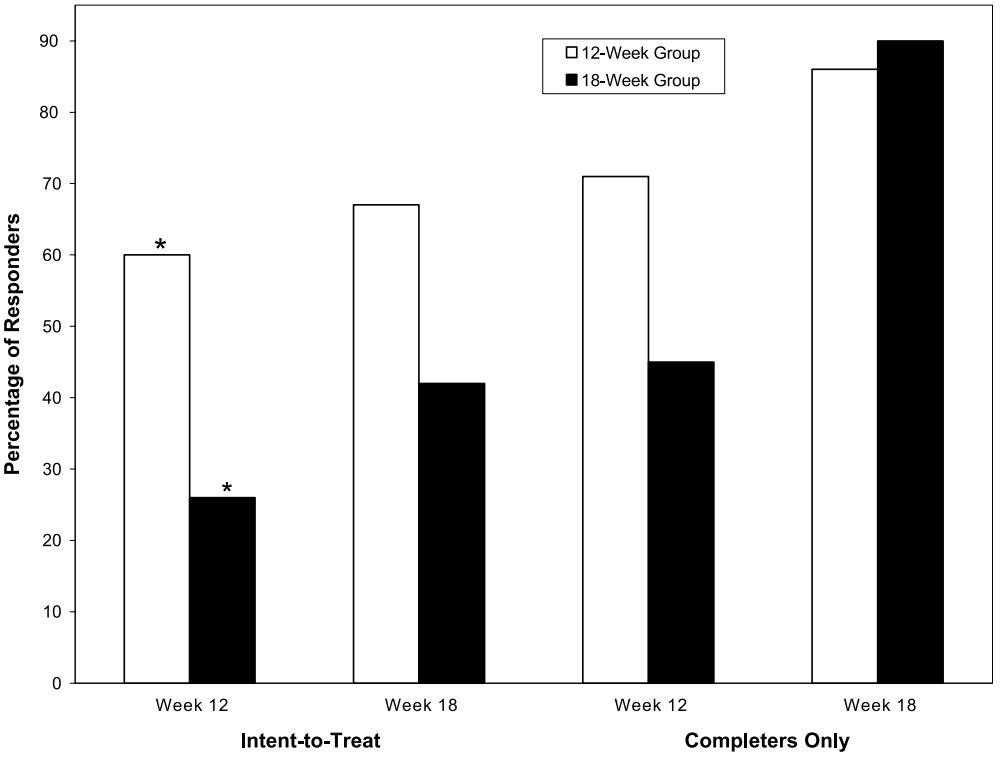

Figure 3. Percentage of treatment responders based on the SPAI-SP for treatment groups at assessment points. SPAI-SP = Social Phobia and Anxiety Inventory-Social Phobia Subscale; 12-week group = Intensive treatment group; 18-week group = Extended treatment group. * = significant difference, $p < .05$

Discussion

The purpose of this study was to explore the impact of variations in the delivery schedule of CBT for generalized SAD. Specifically, we hypothesized that varying the length of time over which a given course of treatment was delivered might impact treatment outcome. The results revealed that the standard treatment program in which therapy was provided over 12 successive weeks resulted in more rapid symptom reduction and lower dropout relative to the extended treatment delivered over 18 weeks.

Comparison of the intent-to-treatment analyses with the completer-only analyses sheds light on these findings. By week 18, participants who completed either protocol achieved comparable (and clinically significant) gains. However, the extended treatment condition was associated with a much higher dropout rate (42% relative to only 7% in the standard condition). Participants who dropped out, although not differing at pretreatment from those who completed the program, were generally not doing as well at the time they discontinued treatment. This resulted in the superiority of the standard program in the intent-to-treat analyses.

One possible explanation for the higher drop-out rate in the extended condition concerns the relative sense of momentum engendered by the two treatment conditions. Participants

in the standard treatment condition knew they had only 12 weeks to accomplish treatment goals, and knew that they would be expected to answer to their therapist on a weekly basis about their homework efforts. In contrast, the longer period of time between sessions in the extended treatment condition may have resulted in a decreased sense of urgency and accountability for some participants and even therapists, thereby encouraging avoidance and procrastination, especially with respect to homework. As less homework was completed, less progress was made, leading to an increased likelihood of prematurely terminating treatment. As we did not directly measure compliance with homework assignments, this interpretation must remain speculative. It is nevertheless consistent with our anecdotal observations and reports from study therapists that increased homework compliance appeared to be associated with improved outcome. It is noteworthy that the literature on the relationship of homework compliance and outcome of CBT for SAD is mixed, with some studies finding a positive relationship (Laguna, Hope, & Herbert, 1994; Leung & Heimberg, 1996), and others finding no association (Edelman & Chambless, 1995; Woody & Adessky, 2002). This interpretation is also consistent with the fact that the vast majority of the individuals who terminated treatment early did so not during the initial 6 weeks of treatment, but rather during the extended treatment phase.

The present results are nevertheless consistent with prior research demonstrating superior effects of massed relative to spaced exposure (Dua, 1972; Foa et al., 1980), and are inconsistent with other studies demonstrating no differences between exposure schedules. There are, however, several aspects of this study that distinguish it from prior research on massed versus paced exposure. First, we employed a multicomponent treatment that involved much more than mere exposure. In addition, the in-session exposure exercises in the current treatment were conducted in the context of cognitive restructuring, and were shorter than typical exposure interventions in which habituation is the goal. Third, the massed-exposure conditions in prior studies involved inter-session intervals of less than a week, whereas the spaced conditions involved intervals of up to one week. In the present study, the standard condition involved weekly sessions, with the extended condition involving inter-session intervals of two weeks for the second phase of treatment. Future research on the intensity of schedules of exposure therapy might examine longer (and more clinically typical) intersession intervals like those employed here.

There are several limitations of this study that merit consideration. First, the relatively small sample size limits confidence in the generalizability of these findings. In particular, we were unable to collect follow-up data on many participants, thereby precluding definitive conclusions about the durability of treatment gains. Although the intent-to-treat analyses suggest that treatment gains were maintained over the 3-month follow-up period for both groups, it remains possible that the more successful participants were more likely to be available for follow-up assessment. Our results are consistent, however, with other research demonstrating similar maintenance of treatment gains (Fava et al., 2001; Gould et al., 1997; Heimberg, Salzman, Holt, & Blendell, 1993). Second, our assessment strategy was limited to measures of symptoms and social behavior assessed in a laboratory task. Although such measures are of course central to the assessment of treatment effects in SAD, broader assessment of social functioning and an assessment of quality of life would have been instructive, as would post-treatment diagnostic data by blind interviewers. Finally, since we did not measure homework compliance we were unable to examine this factor's potential mediating role in the results. Several methodological strengths of the study are also noteworthy, including

the random assignment of participants to conditions, the balanced therapist involvement across the two conditions, and the relatively minimal participant exclusion criteria resulting in a clinically representative sample.

These results have potentially important treatment implications. They suggest that relatively intensive, weekly treatment for generalized SAD is more likely to be effective – especially in terms of minimizing the number of patients who fail to respond and drop out prematurely – than more extended treatment. In fact, future research might consider if even more intensive treatment (e.g. twice weekly sessions, scheduled e-mail or telephone updates between sessions) would result in greater gains.

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