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Exposure and Cognitive Restructuring for Social Phobia: A Controlled Study

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Forty-three social phobics were assigned to exposure (EXP), cognitive restructuring without exposure (CR-alone), or to an intervention combining these techniques (COMB), in a wait-list controlled (WLC) trial. Treatment integrity assessment showed compliance with instructions consistent with the treatments. Within-group analyses showed that the COMB and CR-alone groups improved significantly on all variables, whereas the EXP group showed changes on phobia but not attitudinal measures. Between-group analyses indicated COMB to be superior to EXP on two phobia measures. CR-alone was inferior to EXP and COMB on behavioral approach after treatment, but showed continued improvement relative to the exposure groups on this and other variables by follow-up The relative ability of treatment-induced changes in fear of negative evaluation (FNE), locus of control, and irrational beliefs to predict long-term improvement was assessed. Changes in these variables were predictive of improvement. The change in FNE accounted for the majority of the explained variance

Social phobia can be a complex disorder, with recent research indicating it is frequently multiphobic: fears of specific scrutiny situations (e.g., eating,

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drinking, speaking in public) often co-occur with a more pervasive anxiety about social interactions (Turner, Beidel, Dancu, & Keys, 1986). It has been suggested that, of the phobic disorders, social phobia is the disorder wherein cognitive change procedures are most likely to play a therapeutic role (Biran, Augusto, & Wilson, 1981; Emmelkamp, 1982; Marks, 1987). This suggestion is consistent with a view of social phobia as involving a fear reaction that appears to be more "cognitively mediated" (cf., Emmelkamp, 1979) than is the case in other phobias. Specifically, there is a consensus that the primary feature of social phobia is an excessive fear of negative evaluation (Butler, 1985; Marks, 1969; Nichols, 1974). It has been argued that treatment that addresses this concern will be most effective in ameliorating the disorder (Butler, 1985), and that exposure may be insufficient to achieve this outcome (Butler, Cullington, Munby, Amies, & Gelder, 1984).

Despite these views, the evidence supporting the argument that cognitive procedures have a role beyond exposure-alone in the treatment of this disorder is tentative. Two types of study examining this issue have been conducted: studies examining the effects of cognitive therapy without exposure against exposure alone, and studies examining the effect of cognitive therapy combined with exposure relative to exposure alone. In the first case, the results are equivocal. Biran et al. (1981) found that brief cognitive restructuring without exposure did not affect actual phobic avoidance or distress (SUDS). Emmelkamp, Mersch, Vissia and Van der Helm (1985), on the other hand, found cognitive therapy without exposure to be equal to exposure on most self-report measures, and superior on a test of irrational beliefs, although it was inferior to exposure on measures taken at a behavioral test. Thus, the efficacy of cognitive therapy without exposure relative to exposure for social phobia is unclear.

While such comparison would appear warranted, cognitive theorists would argue that this is not the critical issue (e.g., Beck, Emery & Greenberg, 1985; Ellis, 1979; Meichenbaum & Cameron, 1982), pointing out that behavioral tasks (i.e., exposure) are an integral part of cognitive therapy. Three studies have addressed the additional benefit conferred upon procedures involving exposure by concurrent treatment with cognitive restructuring for social phobia. Stravinski, Marks, and Yule (1982) reported that cognitive therapy did not increase the effects of social skills training (involving exposure) for socially dysfunctional patients. Butler et al. (1984), on the other hand, reported that programmed practice was inferior to programmed practice plus anxiety management involving rational self-talk. However, it is not possible to ascribe the superiority of the Butler et al. (1984) combined intervention to rational self-talk alone, as their anxiety management package also included relaxation and distraction. One study has provided evidence that socially phobic patients improve more with exposure combined with cognitive therapy than with exposure-alone, although between-group differences were found on only some variables (Mattick & Peters, 1988). Thus, the evidence that cognitive restructuring adds to the effects of exposure is tentative. Further evidence supporting the role of cognitive interventions would, at least partly, support the view that the thought patterns present are responsible for maintaining the disorder.

At the same time it is clear that simply classifying therapeutic techniques

as behavioral or cognitive on procedural grounds and subsequently implying different mechanisms of action is to confuse process with procedure (cf., Rachman & Wilson, 1980). In this regard there is a need to begin to examine the mechanisms whereby treatment exerts its effects. In social phobia, fear of negative evaluation by others does appear to be a major deficit, and the reduction of this fear has been hypothesized to be an important mediator of improvement (Butler, 1985). However, little research has been directed at attempting to assess the extent to which reduction in FNE, or irrational beliefs more generally, mediates treatment effects.

The present study aimed to investigate the hypothesis that social phobia responds to treatment involving direct cognitive manipulation. The relative effects of exposure-alone, cognitive restructuring without exposure, and exposure with cognitive restructuring were examined. The study also attempted to determine whether treatment-induced changes in FNE were predictive of long-term improvement.

METHOD

Subjects

The sample comprised 43 patients with a mean age of 41 years. Thirty-six of 95 subjects met criteria after responding to media coverage which described social phobia and a treatment clinic (without requesting volunteers), and seven patients were referred by medical practitioners. Fifty-nine of the media respondents were not included: 13 did not attend the interview; 11 complained of interaction anxiety without the scrutiny fears that define social phobia (DSM-III)[1]; 8 were suffering another disorder; 12 did not report definite avoidance (defined as a score of less than 4 on the Marks and Mathews (1979) 0–8 main phobia rating); 9 could not comply with the methodology; and 6 declined treatment. Subjects met DSM-III criteria for social phobia (American Psychiatric Association, 1980). Included were phobias of eating, drinking, writing or signing in public, or being in public places for fear of scrutiny.[2] All subjects were phobic of more than one of these situations (79% of drinking, 74% of eating, 74% of signing their name, 68% of writing, 19% of being watched, 12% of performing fine motor tasks, and 19% of other situations). In terms of the DSM-III-R (American Psychiatric Association, 1987) a review of initial case notes indicated that 67% of the sample, while suffering scrutiny fears as described, also would probably meet criteria for Social Phobia – Generalized type. These data indicate the disorder to be multiphobic (cf., Mattick & Peters, 1988; Turner et al., 1986).

[1] It is likely that some of these patients would have met DSM-III-R (American Psychiatric Association, 1987) criteria for Social Phobia – Generalized Type. However, this study was conducted prior to the publication of the DSM-III-R

[2] None of these patients were agoraphobic Agoraphobic patients avoid "public places, from which escape might be difficult or help not available, *in case of sudden incapacitation*" (American Psychiatric Association, 1980, p 227). Socially phobic patients may also, and often do, avoid public places, but the fear is of the critical scrutiny of others with an associated fear of acting in a humiliating fashion.

Experimental Design

A single factor, four-group design was employed, with three treatment groups and a waiting-list control (WLC) group. One treatment condition was guided exposure (EXP), one other was cognitive restructuring without exposure (CR-alone), and the last was a combination of guided exposure and cognitive restructuring (COMB). Allocation to conditions was on a randomized basis.

Treatment

General Aspects. Subjects were treated in groups (mean of 5.5 persons; range 4–7) for two hours a week for six weeks. Two therapists conducted treatment. One was a psychologist undertaking postgraduate studies, who had experience of the behavioral treatment of phobias and three years experience using the exposure and cognitive treatments employed in the current study. The second therapist was a senior-level undergraduate psychology student who had received prior supervised clinical training in these techniques. Hence, both therapists were practiced in the treatment procedures described below, and were present at all treatment sessions with the more experienced therapist leading and supervising sessions. Meetings were held after each session to discuss and monitor the integrity of the treatment implementation. The therapists identified no violations of treatment integrity. Additionally, treatment implementation integrity was assessed from behavioral diary data (cf., Vermilyea, Barlow, & O'Brien, 1984). The therapists, being the experimenters, were aware of the treatments being examined, but were careful to convey equal expectancies of improvement to subjects. Ratings of treatment credibility and expectancies of improvement were taken. The focus of treatment was upon the multiple scrutiny fears described earlier. Social interaction anxieties were not directly treated. All scrutiny fears identified for a given subject were targeted for treatment.

Cognitive Restructuring Without Exposure (CR-Alone). This treatment combined rational restructuring (Goldfried & Goldfried, 1980) with elements of rational-emotive therapy (Ellis, 1962). The treatment rationale aimed to demonstrate that the way situations are viewed can affect emotions. It was suggested that (a) the concern about the opinions of others, (b) the feeling that others were watching, and (c) the belief that others could see signs of anxiety were unfounded and were responsible for the anxiety experienced. Once this approach was understood, importance was placed on identifying irrational thoughts, reevaluating them objectively, and changing the thoughts to be more realistic. Subjects were required within each session to analyze either past or hypothetical phobic situations for sources of irrationality. Initially, the therapists played an active role in this process but, as the method was understood, active direction was gradually withdrawn. Even then however, therapists continued to supervise and monitor practice. Subjects were encouraged to practice the procedures on their own, being told that emotional reactions in social settings should now serve as a "cue" to start rational reevaluations. At session one, subjects were given a booklet (Young, 1974), explaining the rational-emotive approach, which was discussed at the following session. At the third session, two irrational assumptions from Ellis (1962; Demand for Approval and High Self-expectation) were incorporated into sessions.

Mention of exposure therapy was avoided, subjects being cautioned against entering phobic situations, and on the few occasions when questions concerning when to enter phobic situations occurred, they were met with standard responses such as "You should worry about that later, the important thing is to change the way you think." In addition, while a group treatment for social phobia would appear to provide some unavoidable "exposure" to other people, the main phobia that the subjects were seeking help with was their fears of eating, drinking, writing, etc., not simply social interaction anxiety. However, care was taken to ensure that subjects did not receive any exposure to their specific fears in the group treatment setting (e.g., eating, drinking, etc.), and social interaction was minimal, the treatment setting being presented as a place for instruction and practice in changing thought patterns.

In order to practice the cognitive change procedures subjects were given homework assignment sheets (see Goldfried and Goldfried, 1980) each week and asked to write about hypothetical or past phobic episodes, and all actual phobic encounters that happened to occur in their present everyday lives. The sheets provided for recordings of: (a) a description of the situation; (b) irrational thoughts that had occurred; (c) a rational reappraisal of the situation; and (d) in order to get an unobtrusive measure of actual exposure to phobic situations in their present, everyday lives, the time spent in contact with phobic situations in minutes was recorded. Within the treatment sessions, homework assignments were reviewed and the rationale repeated for 45 minutes, supervised practice occurred for 60 minutes, and homework was discussed for 15 minutes.

Guided Exposure (EXP). This treatment involved therapist-assisted and guided exposure (cf., Williams, Turner, & Peer, 1985). The treatment procedures are detailed in full elsewhere (Mattick & Peters, 1988). No mention of cognitive change methods was made, to avoid alerting EXP subjects to these procedures. In addition to the weekly within-session exposure, the importance of self-directed exposure (homework) was emphasized. Homework assignment sheets were supplied on which subjects recorded: (a) the situations used for in vivo practice; (b) initial anxiety experienced (0–100); (c) minutes spent in the situation; (d) final anxiety (0–100); and (e) any anxiety-related thoughts, in order to get a measure of cognitive changes. With regard to this last category on the homework sheets, subjects were asked especially to make note of any alteration in thoughts that occurred. They were not, however, instructed to change their thinking pattern deliberately at any stage. The structure of sessions involved a review of homework and the rationale for 45 minutes, guided exposure for 60 minutes, and a discussion of future homework for 15 minutes.

Combined Treatment (COMB). Exposure and cognitive restructuring were integrated, the rationale emphasizing the need to decrease avoidance behavior while pointing out the role of irrational thoughts in initiating and maintaining these behaviors. Subjects were told that it was essential to address these two factors together by entering phobic situations and before, during and after entering these situations, identifying and altering their aberrant thought patterns. The treatment followed the same format at the cognitive restructuring treatment, with one important change: instead of analyzing past or hypothet-

ical situations as a means of practicing cognitive restructuring, subjects were required to assess the reality of their fears that others were looking, could notice signs of anxiety, and were evaluating them negatively, within the actual exposure situations. Subjects use of these procedures was monitored both in treatment and from self-monitoring homework sheets (which allowed for recordings of rational and irrational thoughts, minutes spent, initial and final anxiety levels). The structure of treatment sessions was a review of homework and rationale for 45 minutes, exposure combined with cognitive restructuring occurred for 60 minutes, and future homework was discussed for 15 minutes.

Measures

Behavioral Approach Test (BAT). Individually tailored, hierarchically ordered lists of up to 11 (range 9–11) situations were constructed to represent the range of avoided activities. Choice of hierarchy items followed the method of Biran et al. (1981). A situation or activity was included as an item only if the subject said s/he would avoid it given a choice. Subjects rated how distressing they thought each activity would be using a 0–100 subjective units of disturbance scale (SUDS), and these ratings were used to order the items hierarchically. At the second interview, before the BAT was conducted, this order was rechecked. At each assessment, one item was selected for the test (cf., Butler et al., 1984).[3] This was done by, starting at the bottom of the hierarchy, describing each item in turn and asking the subject if the item could be attempted. Subjects attempted the highest item which they felt could be achieved. (Confederates were employed where necessary to provide a greater and more realistic threat.) In order to provide an "unfamiliar threat" during the BAT assessments (cf., Biran & Wilson, 1981), the locations used in the BAT were not used for exposure. This strategy also overcame the possibility of biasing these assessments in favor of groups receiving exposure.

Self-Report Measures. The Social Phobia Scale (SPS), a 20-item scale assessing anxiety in specific situations often the focus of social phobia, was completed using a 0–4 scale. This is a shortened version of the scale used in another study (Mattick & Peters, 1988). The SPS includes items assessing anxiety in front of others when writing, signing, eating, drinking, shaking, trembling, being observed or scrutinized, or standing out in some fashion (test-retest correlation = 0.91; internal consistency = 0.89; Mattick & Clarke, 1988). The Social Interaction Anxiety Scale (SIAS), a 19-item scale assessing general social interaction anxiety was completed on the same 0–4 scale (test-retest correlation = 0.92; internal consistency = 0.93; Mattick & Clarke, 1988). Several measures were derived from the Fear Questionnaire (FQ; Marks and Mathews, 1979). Thirty-nine items from the Irrational Beliefs Test (IBT; Jones, 1969),

[3] Arguably assessing all items would be the preferred method. However, pilot testing of the BAT indicated that the assessment of all items often was not practically possible: for example, in the case of subjects afraid of eating, whose hierarchy might involve the consumption of several meals Therefore, it was decided to test one item (cf., Butler et al., 1984). The items listed below the item achieved were left untested and were assumed accomplishable because the list was arranged hierarchically and the subjects stated that these items could be achieved.

corresponding to four irrational assumptions (Demand for Approval, High Self Expectation, Irresponsibility, and Anxious Overconcern), were rated on a nine-point scale. The Fear of Negative Evaluation Scale (FNES; Watson & Friend, 1969) and the Locus of Control of Behaviour Scale (LCBS; Craig, Franklin, & Andrews, 1984) were completed. Credibility and expectations were rated for four aspects of treatment on a 0–10 bipolar scale (cf., Borkovec & Nau, 1972).

Behavioral Diary Measures. Subjects were instructed to record their activities systematically on the self-monitoring diaries. At each treatment session the diaries were collected and the data orally verified. The variables coded from the diary data included the weekly (a) number of exposures to phobic stimuli; (b) exposure time in minutes; (c) number of cognitive restructuring exercises reported; (d) mean peak anxiety level; and (e) final anxiety level on contact with phobic situations. To ensure the accuracy of this coding, all the data were independently recorded, and errors corrected.[4]

Composite Measures of Endstate Functioning and Improvement. Endstate functioning was classified using three criteria (cf., Michelson, Mavissakalian, & Marchione, 1985). One point was given for each of the following at follow-up: (a) an FQ Target Phobia Avoidance Rating of two or less; (b) a Self-Rating of Phobic Severity of two or less; and (c) completion of 100% of the BAT with a SUDS rating of 30 out of 100, or less. A score of zero equals low endstate functioning; one, moderate endstate functioning; two, high endstate functioning; and three, very high endstate functioning.

Finally, a composite measure of improvement was used to allocate the subjects to four levels of change based on the following criteria: (a) a decrease of three or more of the FQ Target Phobia Avoidance Rating; (b) a decrease of three or more on the Self-Rating of Phobic Severity; and (c) an increase in BAT performance of at least 50% beyond pretreatment levels of performance.

Procedure

At the initial interview, subjects were screened and a diagnosis of social phobia made; in all cases, this diagnosis was confirmed by a second independent diagnosis reached from a structured diagnostic interview (Robins, Helzer, Croughan, & Ratcliff, 1981). At this interview, the BAT hierarchy was constructed. At pretest the BAT was carried out by the authors, prior to random assignment to treatment condition, and on other occasions by an independent assessor who was ignorant of the research design and blind to both group reassignment and the occasion of measurement. To maintain the integrity of the blind, subjects were cautioned against discussing treatment with the independent assessor, and the assessor reported that for no subject was she aware of the experimental treatment condition. Self-report measures were completed

[4] Our concern was that, even though rates of agreement may reach 95%, or higher, in studies using coding methods of this type (e.g., Mattick & Peters, 1988), errors and disagreements would still be present. Consequently, we have opted to correct errors and resolve disagreements, rather than simply report a reliability estimate.

independently of therapists. Treatment credibility was assessed at the start of the third treatment session when subjects had had a chance to understand the treatment rationale and procedures, but presumably before any marked changes had occurred in symptomatology that might affect such ratings; ratings were not revealed to the therapists (cf., Wilkins, 1973). At post treatment, treated subjects were told to continue practice of the procedures taught until follow-up, without being alerted to the other treatment procedures. The WLC subjects went on to serve at subjects in another study (Mattick & Peters, 1988). Otherwise the current sample is distinct from the sample in the Mattick and Peters (1988) study.

Statistical Analysis

A multivariate analysis of variance of the repeated measures data (O'Brien & Kaiser, 1985) was planned to examine orthogonal contrasts for changes from before to after treatment (post treatment and follow-up, averaged), and from post treatment to follow-up, and to assess interactions between planned treatment contrasts and occasion (cf., Poor, 1973). Three planned orthogonal contrasts were used to assess differences between groups. One contrasted the WLC with the treated groups; the next contrasted the CR-alone condition with the two exposure conditions (EXP and COMB); and the third compared the EXP with the COMB condition. Since the analysis was fully planned, omnibus tests of significance were unnecessary and thus are not reported (cf., Bird & Hadzi-Pavlovic, 1983). Within-group changes were assessed by correlated t-tests.

RESULTS

Charcteristics of Subjects

Subject characteristics are presented in Table 1. There were no significant differences between the groups in age, phobia duration, marital status or sex distribution, although inspection of the sex distribution indicates that the

TABLE 1
SUMMARY OF SUBJECT CHARACTERISTICS

Variable	Treatment condition			
	CR-alone	EXP	COMB	WLC
N (n male)	11 (3)	11 (4)	11 (8)	10 (5)
Mean age (sd)	42.7 (9.5)	41.7 (16.2)	39.7 (9.3)	42 9 (15 1)
Mean duration (sd)	24.9 (13.2)	24.4 (15.2)	16 0 (11.5)	23.1 (13.8)
Marital status				
Married	6	5	5	6
Divorced	2	2	2	1
Single	3	4	4	3

Note. CR-alone = cognitive restructuring without exposure; EXP = guided exposure, COMB = guided exposure with cognitive restructuring; WLC = wait-list control.

COMB group contained more males than the other groups. In keeping with other observations (Marks 1969), the male to female ratio was essentially equivalent. To alleviate symptoms, 72% of the sample had used anxiolytic medication, and 79% alcohol, whereas 70% had received treatment with little or no reported change in symptomatology. Pre-treatment scores on the FQ Target Phobia Avoidance Rating, the FQ Social Avoidance subscale, and the FNES were comparable to other studies (e.g., Biran et al., 1981; Butler et al., 1984; Emmelkamp et al., 1985; Mattick & Peters, 1988). A multivariate analysis of variance was conducted between the four groups on the pretreatment dependent variable scores. There was no significant difference detected between the groups. Five subjects did not complete treatment: two from the CR-alone condition, and one from each of the other groups. Reasons were: personal problems unrelated to treatment (n = 4); and lack of improvement (n = 1). One WLC subject with missing data on some variables was not included in all analyses. There were no differences between treatment completers and non-completers.

Differences Between WLC and Treated Groups

The results on the BAT are presented in Figure 1, and the means for all the treatment-outcome variables are shown in Table 2. For each measure the WLC group showed little change from pretreatment to posttreatment. Between pretreatment and posttreatment, treated subjects improved significantly more than the WLC group on the BAT ($F_{1,34} = 13.06$, $p < 0.005$, MSE = 327.92), the SPS ($F_{1,34} = 9.41$, $p < 0.01$, MSE = 234.75), the SIAS ($F_{1,34} = 4.13$, $p < 0.05$, MSE = 59.97), the FQ Target Phobia Avoidance Rating ($F_{1,34} = 11.71$, $p < 0.005$, MSE = 3.42), the FQ Self Rating of Phobic Severity ($F_{1,34} = 7.51$, $p < 0.05$, MSE = 2.75), the FQ Social Avoidance subscale ($F_{1,34} = 12.79$, $p < 0.005$, MSE = 36.85). On the two measures of irrational attitudes, while the WLC showed no change and all the treatment groups improved, the differences were not significant: FNES ($F_{1,33} = 3.29$, $p > 0.05$, MSE = 22.49); modified IBT ($F_{1,33} = 2.19$, $p > 0.05$, MSE = 431.33). On the LCBS, treated groups improved more than the WLC group ($F_{1,33} = 5.60$, $p < 0.05$, MSE = 31.34).

Differences Between and Within Treated Groups

Credibility/Expectations of Therapy. Ratings were summed to yield a score out of 40. The groups did not differ on these scores: CR-alone group mean = 33.33 (sd = 7.10); EXP group mean = 32.20 (sd = 4.35); COMB group mean = 32.80 (sd = 3.63). There were no significant differences when contrasting the CR-alone group against the two exposure groups ($F_{1,26} = 0.15$, $p > 0.05$, MSE = 29.82), or when the EXP group was compared with the COMB group ($F_{1,26} = 0.06$, $p > 0.05$, MSE = 29.82). These results suggest that the treatments were presented to the subjects in an equally credible way by the therapists, and that the three groups held high and equivalent expectations of improvement. Hence, credibility effects do not appear to be responsible for treatment-outcome differences (cf., Kazdin & Wilcoxon, 1976). This result contrasts with that of Butler et al. (1984) whose exposure-alone patients

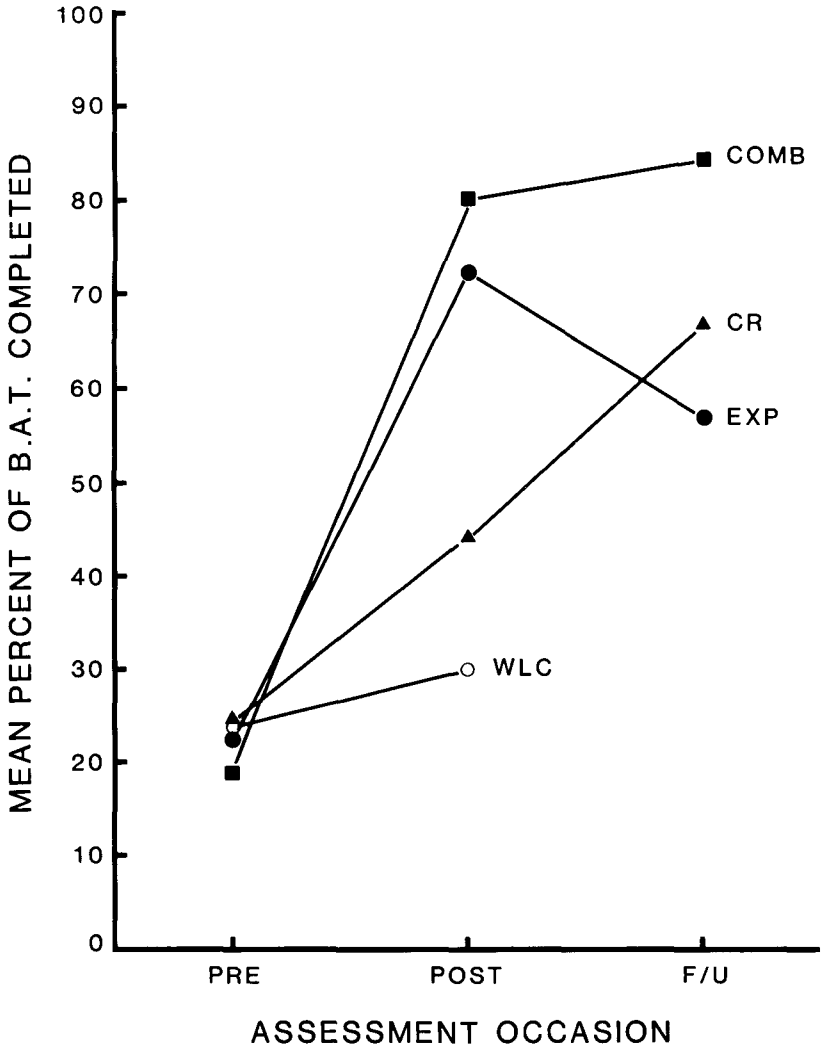


FIG. 1. Behavioral approach test (BAT) mean scores (percentage) before and after treatment, and at three month follow-up. *Note:* CR = cognitive restructuring without exposure; EXP = guided exposure; COMB = guided exposure with cognitive restructuring; WLC = wait-list control.

had lower expectations of outcome than patients given exposure plus anxiety management. This difference between the studies could reflect the timing of expectancy assessment.

Behavioral Approach Test. Inspection of Figure 1 shows that at the post-treatment assessment both the exposure groups had achieved a substantial increase in BAT performance, while the CR-alone group had made more modest

gains. At follow-up the CR-alone group had made further improvement on the BAT, whereas the EXP group deteriorated; the COMB group maintained its improvement. Overall, there was a significant improvement in treated subjects from pretreatment to posttreatment assessments ($F_{1,26} = 162.99$, $p < 0.001$, MSE = 242.18), with no significant overall change between posttreatment and follow-up ($F_{1,26} = 0.37$, $p > 0.05$, MSE = 511.30). However, interactions between occasion and group effects showed that the exposure groups (EXP & COMB) achieved significantly greater gains in BAT performance after treatment (posttreatment and follow-up, averaged) then the CR-alone group ($F_{1,26} = 7.55$, $p < 0.05$, MSE = 242.18). Between posttreatment and follow-up, there was a significant deterioration to the EXP group relative to the COMB group ($F_{1,26} = 6.54$, $p < 0.05$, MSE = 242.18), while across the same period the CR-alone group improved significantly more than the exposure groups ($F_{1,26} = 4.95$, $p < 0.05$, MSE = 511.30). The net result was that the CR-alone group at least equalled the performance of the EXP group on the BAT at follow-up, with both groups being inferior to the COMB group at this point.

Subjective Fear. SUDS ratings were recorded during the BAT based on the BAT item completed. There were no significant group effects between the exposure groups and the CR-alone group ($F_{1,26} = 0.09$, $p > 0.05$, MSE = 634.15), or between the EXP group and the COMB group ($F_{1,26} = 0.11$, $p > 0.05$, MSE = 634.15). These results suggest the treated groups attempted equally distressing items during BAT assessments.

Self-Report Measures

Repeated Measures Effects Across Groups. The data for the self-report measures are given in Table 2. All the self-report measures showed a significant decrease from pretreatment to after treatment: FQ Target Phobia Avoidance Rating ($F_{1,26} = 40.88$, $p < 0.001$, MSE = 4.15), the FQ Self-Rating of Phobic Severity ($F_{1,26} = 45.79$, $p < 0.05$, MSE = 2.99), the SPS ($F_{1,26} = 49.52$, $p < 0.001$, MSE = 292.56), the SIAS ($F_{1,26} = 27.75$, $p < 0.001$, MSE = 77.21), the FQ Social Avoidance subscale ($F_{1,26} - 40.38$, $p < 0.001$, MSE = 42.97), the FNES ($F_{1,26} = 21.45$, $p < 0.001$, MSE = 30.50), and the modified IBT scale ($F_{1,26} = 15.21$, $p < 0.001$, MSE = 650.91), and the LCBS ($F_{1,26} = 12.93$, $p < 0.05$, MSE = 31.34). Significant decreases between posttreatment and follow-up assessments (averaged across groups) also occurred for scores on the FQ Target Phobia measure ($F_{1,26} = 5.43$, $p < 0.05$, MSE = 1.58), the SPS ($F_{1,26} = 4.99$, $p < 0.05$, MSE = 127.23), the FNES ($F_{1,26} = 4.74$, $p < 0.05$, MSE = 26.35), and the modified IBT ($F_{1,26} = 6.89$, $p < 0.05$, MSE = 203.65).

Between Group Differences. There were few significant between-group effects on self-report measures. However, as for the BAT, the FQ Target Phobia Avoidance Rating showed that the CR-alone group changed significantly more than the exposure conditions between post-treatment and follow-up ($F_{1,26} = 7.55$, $p < 0.05$, MSE = 1.58). Similarly, on the modified IBT scale the CR-alone group continued to improve more than the exposure groups between posttreatment and follow-up ($F_{1,26} = 7.31$, $p < 0.05$, MSE = 26.35).

On the FQ Self-Rating of Phobic Severity, the CR-alone group improved significantly more than the exposure conditions (EXP and COMB combined)

TABLE 2
FOUR (TREATMENT CONDITIONS) × THREE (ASSESSMENTS) TREATMENT-OUTCOME DATA

	Treatment-outcome data					
	Pretreatment		Posttreatment		3 month follow-up	
Variable/treatment condition	M	SD	M	SD	M	SD
BAT performance (%)						
CR-alone	24.3	13 5	44 2	26 2	66.9	24 2
Exp	23.2	12 3	72 5	21.3	56.6	28.3
Comb	18.8	8 3	79.9	24 9	84.0	14 3
WLC*	23 3	13.7	31 4	19 1	-	-
FQ target phobia avoidance rating						
CR-alone	7 2	1.3	5.1	2.1	3 3	1.6
Exp	6.4	1 4	4 2	2.4	3.7	2.5
Comb	7 1	0 9	3 5	2.0	3.8	1.9
WLC	6.1	1.1	6.9	1 0	-	-
FQ self-rating of phobic severity						
CR-alone	7 0	1.6	4.2	1.5	2 7	0.8
Exp	4.7	1 7	3 4	1 9	3 4	2 1
Comb	6.4	2 0	3.1	1.8	3.4	1.6
WLC	6 0	1.4	6 0	1.8	-	-
FQ Social avoidance subscale						
CR-alone	26 9	8.5	15 0	6.0	11 7	6.4
Exp	16.2	5.5	12.0	5 7	10 5	4.1
Comb	22.3	7 8	11.9	6.3	12.8	4 5
WLC	16.4	8.0	19.3	8.0	-	-

SPS						
CR-alone	42.7	19.1	26.6	10.7	21.0	11 4
Exp	31.4	9 5	26.1	7 7	21.5	9.6
Comb	41.9	6 2	24.0	12.4	24.7	8.9
WLC	37.0	16.9	37.6	16 5	-	-
SIAS						
CR-alone	30 1	16.3	22.1	9 3	17 9	10.1
Exp	29.8	14.8	25 8	10.1	22.0	11.4
Comb	42.6	12.3	28.4	11 9	29.8	10.8
WLC	33.0	16 9	29.8	16 0	-	-
FNES						
CR-alone	24.2	6 3	20.6	8 7	14 4	10.0
Exp	23.2	5 3	21.6	5 8	18.0	7 8
Comb	25 9	4.9	18.1	10.2	19.0	9.4
WLC	20.5	9.8	21 0	10 0	-	-
IBT (modified)						
CR-alone	173.9	18.2	155 0	28 7	130.6	34.1
Exp	170.8	24.0	164.1	22.5	156.8	30 0
Comb	177.7	22.9	150.1	30.5	152.3	27.8
WLC	166.6	27 5	166.3	37.5	-	-
LCBS*						
CR-alone	34.9	12 4	29.1	9 9	-	-
Exp	37 3	5.9	33.5	7 4	-	-
Comb	40 0	6.7	29 7	8.7	-	-
WLC	36.8	4.5	37.6	7 7	-	-

Note BAT = Behavioral Approach Test; FQ = Fear Questionnaire; SPS = Social Phobia Scale; SIAS = Social Interaction Anxiety Scale; FNES = Fear of Negative Evaluation Scale, IBT = Irrational Beliefs Test; LCBS = Locus of Control of Behaviour Scale; CR-alone = cognitive restructuring without exposure, EXP = guided exposure; COMB = guided exposure with cognitive restructuring; WLC = wait-list control. * = Data were not collected at follow-up.

from before to after treatment (i.e., the average of posttreatment and follow-up) ($F_{1,26} = 5.10$, $p < 0.05$, MSE = 2.99). This appears to be due to the relatively small changes achieved by the EXP group on this measure (see Table 2). Consistent with this interpretation, the EXP group improved less than the COMB group on the FQ Self-Rating of Phobic Severity from before to after treatment ($F_{1,26} = 5.64$, $p < 0.05$, MSE = 2.91).

Within-Group Changes

To further examine the absolute level of change achieved by the different treatment conditions, and to ascertain during which assessment phases significant changes occurred, within-group correlated t-tests were performed between pretreatment and posttreatment, between posttreatment and follow-up, and between pretreatment and follow-up. The WLC showed no significant change from pre- to posttreatment on any variable. The t-tests revealed statistically significant ($p < 0.05$) findings in favor of the COMB and CR-alone groups. The COMB group showed significant improvements on every variable from pretreatment to posttreatment, and from pretreatment to follow-up. There were no significant changes from posttreatment to follow-up for the COMB group. The CR-alone group showed significant pretreatment to posttreatment changes on the FQ Self-Rating of Phobic Severity, the SPS, the FQ Social Avoidance subscale, and the LCBS. Between posttreatment to follow-up, the CR-alone group showed further significant improvement on the IBT and the FQ Self Rating of Phobic Severity. From pretreatment to follow-up, the CR-alone condition showed significant improvement on all variables.

The EXP condition from pretreatment to posttreatment showed significant improvement on one variable only: the BAT. From posttreatment to follow-up significant improvement occurred on the SIAS. However, from pretreatment to follow-up, this group showed overall gains on the BAT, the FQ Target Phobia Avoidance Rating, the FQ Self-Rating of Phobic Severity, the FQ Social Avoidance subscale, and the SPS. The EXP group did not change significantly on any of the three attitudinal variables: the FNES (although this variable approached significance from pretreatment to follow-up ($p < 0.1$)), the IBT, or the LCBS.

Clinical Significance

The significance of the clinical improvement was addressed by the comparison of the outcome variables with those of other studies, and by consideration of the composite endstate functioning and improvement measures. Compared to the results of other research using exposure-based treatments (Butler et al., 1984; Emmelkamp et al., 1985; Mattick & Peters, 1988), the degree of the changes occurring in the avoidance measures was of a similar magnitude.

Endstate Functioning and Improvement. There were no significant differences between the treated groups in terms of endstate functioning or improvement. The data, shown in Table 3, suggest that in terms of endstate functioning, the COMB treatment was clinically inferior to the EXP treatment. However, this apparent difference would seem to reflect different starting points (although not significantly different) for these two groups rather than differing improve-

TABLE 3
COMPOSITE MEASURES OF ENDSTATE FUNCTIONING AND IMPROVEMENT

Treatment condition	Composite measure of endstate functioning			
	Low	Moderate	High	Very high
CR-alone [N (%)]	6 (55%)	1 (9%)	4 (36%)	0 (0%)
EXP [N (%)]	6 (55%)	1 (9%)	3 (27%)	1 (9%)
COMB [N (%)]	8 (73%)	0 (0%)	2 (18%)	1 (9%)
	Composite measure of improvement			
Treatment condition	Low	Moderate	High	Very high
CR-alone [N (%)]	3 (27%)	5 (45%)	1 (9%)	2 (18%)
EXP [N (%)]	2 (18%)	4 (36%)	4 (36%)	1 (9%)
COMB [N (%)]	1 (9%)	2 (18%)	3 (27%)	5 (45%)

Note. CR-alone = cognitive restructuring without exposure, EXP = guided exposure; COMB = guided exposure with cognitive restructuring

ment (see Table 2). Consistent with this interpretation and the other outcome analyses, the COMB group showed greatest (although not significantly different) improvement on the composite measure of improvement. These facts point to the need to assess both endstate functioning and improvement in studies of this type.

Integrity of Treatment Implementation

Reported Treatment Compliance. Table 4 shows the averaged weekly number of exposures, total weekly exposure time, duration of each exposure, and the number of cognitive restructuring exercises practiced weekly during treatment. (Self-monitoring of activities was not carried out during the follow-up period.) Both exposure groups engaged in active and repeated contact with the phobic situations, reporting significantly more exposures to phobic situations than the CR-alone group ($F_{1,26} = 17.34$, $p < 0.001$, MSE = 20.95), for a significantly greater total time ($F_{1,26} = 13.29$, $p < 0.005$, MSE = 13171.50). There was no significant difference between the two exposure groups in terms of total exposure time ($F_{1,26} = 2.74$, $p > 0.05$, MSE = 13171.50), although there was in terms of the total number of situations used for exposure ($F_{1,26} = 8.79$, $p < 0.01$, MSE = 20.95), the EXP condition during more than the COMB condition. There was no significant difference between the COMB and EXP groups in the duration of each exposure ($F_{1,26} = 1.03$, $p > 0.05$, MSE = 131.30). Turning to the cognitive restructuring exercises, the CR-alone and COMB groups did not differ significantly ($F_{1,26} = 3.03$, $p > 0.05$, MSE = 3.04), reporting rational reevaluations of disturbing thoughts, while virtually no such rational reevaluations were reported by the EXP group ($F_{1,26} = 14.11$, $p < 0.01$, MSE = 3.04).

Anxiety Levels During Exposure Practice. Both the EXP and COMB groups

TABLE 4
MEAN WEEKLY NUMBER OF EXPOSURES, TOTAL AND AVERAGE EXPOSURE TIMES, AND NUMBER OF COGNITIVE RESTRUCTURING EXERCISES REPORTED

Variable	Treatment condition		
	CR-alone	EXP	COMB
Number of exposures to phobic stimuli (weekly)	3.44	14.13	10 06
SD	1 34	6 87	2 38
Total weekly exposure time (minutes)	69.67	276.30	198.90
SD	45.18	156.49	89.00
Average duration of each exposure (minutes)	20.30	20.70	25.90
SD	11.59	8.35	12.28
Number of CR exercises reported (weekly)	6.67	0.02	8 06
SD	1.57	0 60	2.38

Note. CR-alone = cognitive restructuring without exposure; EXP = guided exposure, COMB = guided exposure with cognitive restructuring

reported virtually identical average levels of anxiety upon initial contact with the phobic situations (EXP group; mean = 54.80, sd = 13.22; COMB group: mean = 53.40, sd = 16.79). At the end of contact with the phobic situations, these groups reported similar final anxiety levels (EXP group: mean = 35.10, sd = 11.61; COMB group: mean = 29.90, sd = 15.72). There was no significant group difference either overall ($F_{1,18} = 0.26$, $p > 0.05$, MSE = 426.75), or across the assessment occasions ($F_{1,18} = 0.92$, $p > 0.05$, MSE = 39.24). The decrease from initial to final anxiety levels did reach significance ($F_{1,18} = 118.90$, $p < 0.001$, MSE = 39.24), indicating exposure did decrease anxiety within sessions.

Analysis of Postulated Mediators of Long-Term Improvement

A multiple linear stepwise regression was conducted using the composite measure of improvement as the dependent variable, and entering the pre- to posttreatment changes in the FNES, the IBT, and the LCBS scores as predictors. Specifically, the rationale for conducting the analysis was to delineate the relationship between treatment-induced changes in the three possible mediating attitudinal variables and the amount of long-term clinical improvement achieved. Changing irrational attitudes, especially FNE, has been argued to be central to improvement in social phobia (cf., Butler, 1985). With regard to LCBS, past research has suggested that change in this variable is predictive of both outcome and relapse for other problems (e.g., Craig & Andrews, 1985). The LCBS was included to assess its predictive value in the case of social phobia. This regression analysis was significant ($F_{3,32} = 4.27$, $p < 0.05$) with multiple

$R = 0.53$, and $R^2 = 0.29$ for the change in FNES, IBT, and LCBS scales. The simple correlations between the composite measure of improvement and changes in FNES, IBT and LCBS, were 0.46, 0.45, and 0.15, respectively. In this analysis the change in FNES accounted for the vast majority of the explained variance (21%). A further regression analysis excluding WLC subjects, obtained the same result as the previous analysis. The change in the FNES again accounted for the bulk of the explained variance (22%) beyond the change in IBT and LCBS ($F_{3,24} = 4.13$, $p < 0.05$, multiple $R = 0.58$, $R^2 = 0.34$). The simple correlations between the composite measure of improvement and change in FNES, IBT, and LCBS were 0.47, 0.42, and 0.03, respectively. These results support the importance of decreasing concerns about the opinions of others to maximize treatment effects. However, two notes of caution are warranted when viewing these results. First, the number of subjects in the analysis was small.[5] Secondly, the predictive power of change in FNES on phobic improvement presented above may be purely fortuitous due to its slightly larger simple correlation with the criterion variable. Cohen and Cohen (1983) note that in "other samples and, more important, in the population, such differences may well be reversed" (p. 124). Where the results are to be substantively interpreted, a cross-validation of the analysis in another sample should be undertaken, and "only those conclusions that hold for both samples should be drawn" (Cohen & Cohen, 1983, p. 125). This cross-validation is provided elsewhere (Mattick & Peters, 1988), and suggests that change in concerns about the opinions of others can be interpreted in an explanatory fashion when accounting for the effects of treatments for social phobia.

DISCUSSION

Research examining cognitive restructuring without exposure, guided exposure, and cognitive restructuring with guided exposure for social phobia has not been previously reported. This study used either established, validated, or reliable measurement procedures, and the results revealed significant repeated measures effects, indicating that treatment was capable of producing lasting changes in chronic social phobia. From before to after treatment, treated subjects improved more than the WLC subjects, achieving significant changes in phobic avoidance and severity, and in attitudinal variables. While treatment focused upon scrutiny fears, there was generalization of treatment effects to interaction anxiety, as assessed on the Social Interaction Anxiety Scale. Between posttreatment and follow-up, the majority of these variables showed significant gains beyond posttreatment levels. The final levels of the dependent measures were similar to other studies (e.g., Butler et al., 1984; Emmelkamp et al., 1985), suggesting that treatment implementation and outcome were equally efficacious to these studies.

Turning from these overall changes to the changes achieved within each treated group, t-tests revealed a number of superior findings in favor of the

[5] Cohen and Cohen (1983) suggest that a ratio of independent variables to subjects of 1:40 is prudent, which in the current case would require 120 subjects to be studied.

COMB and CR-alone groups,[6] although behavioral change for the CR-alone group was not evident until follow-up. This last result supports the suggestion of Wilson (1982) that CR-alone may take longer than exposure treatments to affect behavioral measures. The mechanism through which these continued behavioral gains occurred for the CR-alone group is unclear, although it is possible that the CR-alone procedure motivated subjects to enter phobic situations across the follow-up period. The absence of behavioral diary data for the follow-up period makes it impossible to examine this hypothesis.

The t-tests indicated that the EXP condition showed no significant improvement on the FNES, the IBT, or the LCBS. These results are consistent with those obtained by other researchers. Butler et al. (1984) found exposure-alone produced few within-group changes on phobia measures compared to a combined treatment (exposure plus anxiety management). Furthermore, Butler et al. (1984) and Emmelkamp et al. (1985) found that exposure did not affect the FNES and IBT, respectively. At the same time, other research indicates that guided exposure can affect such measures (Mattick & Peters, 1988), and, in the current study, the pretreatment to follow-up change in FNES did approach significance ($p < 0.10$) for the EXP group. It would appear that exposure-alone is less likely to alter attitudinal variables than treatment involving cognitive restructuring.

Summarizing the analyses for between-group differences, EXP was inferior to the COMB group on two measures of the phobia. This result essentially replicates our other research on exposure and a combined treatment showing a slight, advantage for the combined procedure (Mattick & Peters, 1988). CR-alone was inferior to the exposure groups on the BAT only, but made additional gains between posttreatment and follow-up so that it equalled the EXP group at follow-up. These differences occurred despite the finding that the treatments were rated as equally credible by the groups, who reported high expectancies of improvement, and complied with instructions consistent with the implementation of the respective treatments. All treated groups received equivalent therapist contact, and on behavioral diary sheets, subjects in the COMB group reported practice of the cognitive procedures equal to that of the CR-alone group.[7] The EXP group reported virtually no such deliberate practice. The exposure groups received equal duration of real-life exposure to phobic situations, and showed declines in within-session anxiety levels.

The regression analyses indicated that change in the FNES was most predictive of long-term improvement. This result provides empirical support for the clinical observation that in social phobia an excessive concern over the opinions of others plays a major role in mediating avoidance behavior (cf., Butler, 1985). At the same time, the variables in the regressions accounted for only a small proportion of the variance (29–34%), raising the possibility that other impor-

[6] It is pointed out that the multiple t-tests conducted could inflate the Type One Error Rate, and readers should bear this possibility in mind when considering the results.

[7] It may be that these data are an index of instructions regarding the completion of behavioral diary sheets, and additional independent ratings of therapy session content may be useful in ensuring treatment integrity beyond diary data and therapist perceptions (cf., Michelson et al., 1985).

tant explanatory variables may have been omitted. Future research might attempt to search for other potential mediators of treatment effects for this disorder. Additionally, the methodology used might include more valid assessment devices than the self-report measures used here, some of which have been criticized (Turner, McCanna, & Beidel, 1987), and look to information processing paradigms to assess the presence of cognitive deficits.

The current results have implications for an understanding of the treatment of social phobia. They imply that cognitive restructuring without exposure instructions can have effects on behavioral aspects of the disorder in the long-term. It should be noted that the CR-alone treatment in this study was delivered in a group format. Thus, it could be argued that this treatment exposed subjects to other people, and in this way inadvertently involved exposure therapy. However, CR-alone subjects received no exposure to their specific fears within the treatment setting (e.g., eating, drinking, etc.), and these were the fears measured to assess treatment effects.

Exposure-alone also had substantial effects on measures of the phobia in the long-term, but did not appear to bring about significant changes on attitudinal measures. Combining exposure and cognitive restructuring appears to produce effects superior to exposure-alone. However, it is apparent that the effects of adding cognitive restructuring to exposure were not substantial, since the between-group analyses showed that the COMB group was superior to the EXP group on only two measures. Similarly, the composite measures of improvement and endstate functioning did not yield significant between-group differences. These last data also suggested that the treatments produced limited clinical gains. The reason for this is probably to do with the criteria used, which were more stringent, having stricter cut-off points on fewer variables than has been used in other research (e.g., Michelson et al., 1985). At the same time, these criteria appear clinically relevant; social phobia has been found (Turner et al., 1986) to be a more pervasive and complex disorder than previously recognized (e.g., DSM-III). It might prove then that a longer duration of treatment will produce a better outcome, and additional procedures may be important in ameliorating this condition.

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