

Can Cognitive Restructuring Reduce the Disruption Associated With Perfectionistic Concerns?

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We investigated the utility of a brief cognitive restructuring intervention in inoculating perfectionists from their typical negative responses to evaluative threat. In particular, we wanted to examine whether cognitive restructuring could reduce perfectionists' negative affect and cognitions about a speech task. We were also interested in analyzing the pattern of within-session change across a variety of affective and cognitive measures as a function of this cognitive intervention. Sixty female undergraduate students delivered a speech before a small audience. We used a 2 (Group) \times 2 (Condition) design to investigate the effects of perfectionism and intervention type on subjects' negative affect and cognitions related to the evaluative task. Participants high and low in perfectionistic concern over mistakes (CM; group) were randomly assigned to receive either a cognitive restructuring or distraction intervention (Condition) prior to the speech task. Individuals high in CM reported significantly more negative cognitive and affective responses to the evaluative task than low CM subjects; however, cognitive restructuring was successful in reducing cost and probability estimates for all subjects' most feared predictions for the impending speech. Moreover, these cognitive changes were associated with lower ratings of self-reported anxiety in comparison to subjects in the distraction condition. Interestingly, cognitive restructuring did not affect subjects' more global ratings of negative affect or negative thoughts about the speech. Our results provide some preliminary but encouraging implications for the effectiveness of cognitive restructuring in the treatment of perfectionism.

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Perfectionism, or the tendency to set high standards and be excessively concerned about making mistakes, has been associated with negative affect and psychopathology (Alden, Bieling, & Wallace, 1994; Frost, Heimberg, Holt, Mattia, & Neubauer, 1993; Hewitt & Flett, 1991; Juster et al., 1996). In both naturalistic settings (e.g., athletic competition) and laboratory challenges (e.g., Stroop task), perfectionists are significantly more likely than nonperfectionists to respond to evaluative threat with a negative cognitive set. Perfectionists believe that it is more important for them to do well on an impending task, but they experience more worry about their performance and the possibility of making mistakes (Frost & Henderson, 1991; Frost & Marten, 1990; Frost et al., 1995). Following completion of a task, perfectionistic individuals characteristically evaluate their performances more harshly, often stating that they "should" have done better and reporting that they are more bothered by their mistakes than nonperfectionists (Brown et al., 1999; Frost et al., 1995; Frost et al., 1997; Frost & Marten). Not surprisingly, perfectionists typically respond to evaluative tasks with increased negative affectivity (Brown et al.; Flett, Hewitt, Endler, & Tassone, 1995; Frost et al., 1997; Frost & Henderson, 1991; Frost & Marten).

Recent evidence also indicates that perfectionism can interfere with the effects of treatment. The National Treatment of Depression Collaborative Project (TDCRP) investigated the comparative efficacy of medication versus psychotherapy in treating over 200 subjects with major depression. Although perfectionists were more likely than nonperfectionists to complete treatment, perfectionism negatively and significantly predicted poorer response in all treatment groups at posttreatment (Blatt, Quinlan, Pilkonis, & Shea, 1995) and at 18-month follow-up (Blatt, Zuroff, Bondi, Sanislow, & Pilkonis, 1998).

Given the negative impact of perfectionism on reactions to evaluative threat as well as its potentially pernicious effect on treatment outcome, it is important to investigate whether and how perfectionism can be changed. Existing data indicate that perfectionism is not likely to decline when it is not the explicit focus of treatment. For example, a number of studies have found that perfectionism levels are not reduced during treatment for an eating disorder, even if the eating disorder symptomatology is successfully treated (Bastiani, Rao, Weltzin, & Kaye, 1995; Srinivasagam et al., 1995; Sullivan, Bulik, Fear, & Pickering, 1998; Szabo & Terre Blanche, 1997).

A number of investigators have suggested the utility of cognitive therapy as a tool to remediate the critical and unrealistic cognitive standards of perfectionists (Brouwers & Wiggum, 1993; Burns, 1980; Halgin & Leahy, 1989). Although there have been no controlled evaluations of a treatment for perfectionism, two studies that have defined perfectionism as the explicit focus of treatment have found some preliminary evidence of the utility of cognitive-behavioral treatment (Barrow & Moore, 1983; Ferguson & Rodway, 1994).

In this study, we wanted to investigate whether certain cognitive coping strategies reduce perfectionists' negative responses to evaluative threat. Furthermore, we wanted to examine within-session changes on a variety of cog-

nitive and affective measures in order to determine how change might occur for perfectionists, particularly following a cognitive restructuring intervention. In particular, we were interested in the pattern of molecular changes that happen following cognitive restructuring. Although treatments that include cognitive restructuring have clinically significant effects on a wide variety of psychopathology, such as bulimia nervosa, panic disorder, and social phobia (Gould, Buckminster, Pollack, Otto, & Yap, 1997; Gould, Otto, & Pollack, 1996; Whittal, Agras, & Gould, 1999), little empirical work has focused on more molecular (e.g., within-session) patterns of change.

We chose to examine perfectionists' responses to a public speaking task. Although this is the first study to examine perfectionists' responses to a speech task as a form of evaluative threat, we thought it appropriate for two reasons. First, public speaking is the most commonly reported fearful evaluative social situation in the general public (Stein, Walker, & Forde, 1996). In addition, this type of task has been widely used by researchers (cf. Hofmann & DiBartolo, 2000; Hofmann, Newman, Ehlers, & Roth, 1995). We hypothesized that perfectionists would experience more severe speech-related anxiety and cognitive distortions than nonperfectionists. We speculated that by helping perfectionists examine and alter their maladaptive thoughts, we might be able to help reduce their anxiety and negative thinking during the public speaking task. Overall, we expected that cognitive restructuring, as compared with a distraction control condition, would be associated with lower levels of negative speech-related anxiety and predictions in both perfectionists and nonperfectionists, with the effects being stronger for the perfectionists.

Method

Participants

An initial pool of 138 female students, obtained from residential houses and an introductory psychology class at a small, private women's college, completed the 35-item Multidimensional Perfectionism Scale (MPS; Frost, Marten, Lahart, & Rosenblate, 1990) as part of a larger battery of questionnaires. The 9-item Concern Over Mistakes (CM) subscale of the MPS, used in this screening, was designed to identify subjects with a tendency to report negative reactions to mistakes, to evaluate mistakes as failures, and to believe that following a failure, there will be a loss of respect from others. The CM subscale has good reliability and internal consistency ($\alpha = 0.88$; Frost et al., 1990). Internal consistency of the subscale in our initial screening sample was high ($\alpha = 0.93$).

Upper and lower quartiles of CM subscale scores were used to identify high CM (HCM; $CM \geq 27$) and low CM (LCM; $CM \leq 17$) groups, respectively. A total of 60 female students from these two groups completed the lab task (age $M = 18.98$; $SD = 1.2$). Ten additional subjects (6 from the LCM group; 4 from the HCM group) participated but were eliminated from the final subject pool because they ended the assessment pre-

maturely. Participants either received course credit or were entered into a \$50.00 lottery drawing.

Design

The experiment employed a 2×2 design with the first factor being Group (HCM vs. LCM) and the second factor being Experimental Condition (cognitive restructuring vs. distraction). A total of 15 subjects was assigned to each cell.

Measures of Cognition: Importance, Expectancy, and Evaluation

Pre-Speech Importance and Expectancy Rating Form. This questionnaire consisted of three questions (i.e., “How well do you expect to perform this task?”; “How well do you expect others to perform this task?”; “How important is it for you to do well on this task?”) rated on a scale of 0 (*not at all*) to 100 (*extremely*).

Post-Speech Evaluation Form. Using a 0 (*not at all*) to 100 (*extremely*) scale, subjects responded to 5 items after completing the speech task (i.e., “How anxious were you on average?”; “How well were you able to communicate what you wanted to say?”; “How satisfied were you with your performance?”; “How much did you enjoy giving this talk?”; “How well do you feel you should have done on this task?”).

Follow-Up Speech Evaluation Form. Approximately 1 week following the assessment, subjects received a 5-item form in the mail. Using a 0 (*not at all*) to 100 (*extremely*) scale, this form assessed subjects’ thoughts and feelings about the assessment (i.e., “How much were you bothered by thoughts about the speech?”; “How satisfied are you with your performance on the speech?”; “How much did you enjoy the speech?”; “How well did you feel you should have done on the speech?”).

Measures of Cognition: Speech-Related Concerns

Speech-Related Concerns Questionnaire (SRCQ). Participants rated how bothered they were by 12 particular thoughts or feared outcomes associated with giving a speech on a 7-point Likert-type scale ranging from 1 (*not at all bothered*) to 7 (*very bothered*). These feared outcomes were as follows: making a ton of mistakes; forgetting what planned to say; running out of things to say; repeating self over and over; stuttering and looking nervous; being so nervous won’t be able to handle it; sounding stupid; offending someone; audience laughing; audience disagreeing; boring the audience; proving incapacity due to failure. Prior to the speech, participants indicated how bothered they were by these thoughts in anticipation of the upcoming task. Following the speech, they rated how bothersome the thoughts were during the speech task. Internal consistency of this scale at both administrations for this sample was high (alphas = 0.95).

Predictions for feared outcomes. Before completing the speech task, participants in both the distraction and cognitive restructuring conditions were asked to choose the thought, or feared prediction, from the SRCQ that was most distressing to them. They were then asked to estimate the likelihood or probability that this prediction would come true during the upcoming speech

on a scale of 0 (*not at all likely*) to 100 (*definitely likely*). Subjects also estimated the total number of speeches they had ever given in their lives that had been at least 10 minutes long. Finally, participants were asked to rate how horrible it would be if their feared expectation were to occur during the impending speech on a 0 (*not at all horrible*) to 100 (*extremely horrible*) scale.

During the training phase, subjects in the cognitive restructuring condition rerated their probability estimates and horribleness and coping ratings after the experimenter led them through a series of questions designed to help them think more realistically about their predictions (see Experimental Manipulation section for further details). We did not ask subjects in the distraction condition to rate their feared prediction measures a second time because this process may have served as a form of cognitive restructuring. Instead, they spent the training phase crossing out all the *e*'s they found in a textbook in order to keep their minds off of the upcoming task. For both conditions, the training phase lasted 8 minutes long.

Ratings of Anxiety and Negative Affectivity

Subjective Units of Distress Scale (SUDS; Wolpe, 1982). Throughout the assessment, subjects were asked to indicate their feelings of anxiety using SUDS ratings on a 0 (*not at all anxious*) to 100 (*extremely anxious*) scale. This measure served as a specific anxiety measure during the speech task. It has been correlated with other physiological indicators of anxiety, specifically heart rate and peripheral vasoconstriction (Thyer, Papsdorf, Davis, & Vallecorsa, 1984).

Positive and Negative Affect Scale—State Version (PANAS; Watson, Clark, & Tellegen, 1988). This 20-item scale was designed to measure two primary dimensions of mood: positive (PA) and negative affect (NA). Previous research indicates that the two subscales possess good test-retest reliability and internal consistency. External validity for the PA and NA subscales has been confirmed with other measures of distress and psychopathology. In our sample, internal consistency was high for each subscale (alphas ranged from 0.86 to 0.92).

Audience Ratings

Audience members were asked to rate subjects on perceived anxiety and the quality of the speech on a scale of 0 (*not at all*) to 100 (*extremely*). Audience members were unaware of participants' condition and CM group status.

Procedure

Baseline Phase

Upon arrival to the lab, participants completed an informed consent form. Next, the experimenter, an undergraduate research assistant, described the purpose of the SUDS ratings, obtained a baseline rating, and administered the PANAS. Participants were then told about the 10-minute speech task and

chose three of five topics: abortion, the health care system, mandatory seat belt laws, corporal punishment in the schools, and nuclear power. Subjects were told that they could cover the topics in any manner they desired (e.g., one of the three, two of the three, or all three) and that they could return to a topic later in the speech even if it had already been covered. The experimenter then described the purpose of a STOP sign, which they could use to halt the assessment if their anxiety became unbearable. All pretask questionnaires were then administered (i.e., Importance and Expectancy form; SRCQ).

Preparation Phase

Subjects were left alone in the room for a 3-minute preparation phase during which they had the option of taking notes in preparation for the speech, although they were not able to use these notes while speaking. Both prior to and following this phase, the experimenter obtained SUDS ratings.

Training Phase

The experimenter then conducted the training phase, administering either the cognitive restructuring or distraction condition protocols. This phase lasted a total of 8 minutes for each group and participants gave SUDS ratings at its beginning and end (pretraining phase and posttraining phase).

In final preparation for the speech task, the experimenter explained to subjects that they would be signaled by an intercom to give SUDS ratings throughout the speech. Subjects were told to write their SUDS rating on an index card and then flip the card over and continue with the speech. All participants stood at a podium while giving the speech.

The experimenter then left the lab and escorted in two audience members who were student volunteers. They were instructed to show no emotion and to hold a pad and pen to create the appearance of taking notes.

Speech Phase

Before the experimenter left the room at the start of the speech, she requested a pretask SUDS rating. At 1-minute intervals during the speech, the experimenter signaled subjects for SUDS ratings. After the 10-minute SUDS rating, the experimenter entered the room and the audience exited.

Post-Speech Phase

Post-task assessment questionnaires (PANAS; SRCQ; Post-Speech Evaluation Form) were then administered. At 1-minute intervals, the experimenter requested SUDS ratings for five ratings, or until subjects reached their baseline anxiety rating (or lower), whichever came first.

Upon completion of the forms, subjects were debriefed. They were then told about the Follow-Up Speech Evaluation Form and were reminded to keep the session confidential. The experimenter signed subjects' credit form or instructed subjects about the lottery for \$50.00.

Experimental Manipulation: Training Phase

Cognitive Restructuring Condition

Addressing probability overestimation. The experimenter explained that by examining negative thoughts in relation to the task, subjects may be able to feel calmer during the speech. To begin the cognitive restructuring process, subjects were encouraged to evaluate their worries, or negative thoughts, in anticipation of the speech. After estimating the probability that their feared expectation would occur during the upcoming speech (see Feared Prediction measures section), subjects recalled in how many past speeches their distressing expectation had actually come true. The experimenter then calculated the percentage of times during past speeches in which their current feared outcome had actually occurred and reported this percentage to the participant. In contemplating the actual evidence from past speeches, subjects were asked to reevaluate their predictions, on a 0-to-100 scale, as to how likely their expectation would occur in the present speech.

Decatastrophizing feared outcome. After rating how horrible it would be if their feared expectation were to occur (see Feared Prediction measures section), subjects were asked how well they were able to cope with or recover from previous or similar occurrences on a 0 (*not at all able*) to 100 (*extremely able*) scale. In order to attempt to put the speech into perspective, subjects were asked to compare the horribleness of their feared prediction for the speech with other, more serious events in life (i.e., failing a course and losing a loved one). After evaluating the horribleness of these serious events, subjects reevaluated their prediction as to how horrible it would be if the feared outcome occurred during the speech, and asserted how well they would be able to cope if it were to occur (both using a 0-to-100 scale).

Coping statement. The experimenter summarized the session of cognitive restructuring with subjects. In closing, subjects were asked to come up with a phrase or coping thought, related to the cognitive restructuring, to be used during the speech when they felt anxious. Subjects wrote the coping thought on an index card that was taped on the podium to which they could refer during the speech task.

Distraction Condition

The experimenter explained to subjects randomized to the distraction condition that their task was to cross out all the *e*'s that they found in a passage from a chemistry textbook in order to keep their minds off the upcoming speech. The length of this task was comparable to the cognitive restructuring condition (8 minutes long).

Results

Approach to Statistical Analysis

We conducted one-way ANOVAs comparing HCM versus LCM participants for only the initial importance and expectancy rating items that were

gathered prior to the introduction of the condition manipulation (distraction vs. cognitive restructuring). Measures gathered after the introduction of the condition manipulation included an analysis of both Group (HCM vs. LCM) and Condition effects (e.g., Audience Ratings, Predictions for Feared Outcome, and Post- and Follow-up Speech Evaluation Ratings). There were three additional analyses that examined Group \times Condition \times Phase effects for measures that were gathered multiple times over the course of the assessment (i.e., SUDS, PANAS, and SRCQ).

The only instances in which we could not fully examine condition effects involved a pre- versus postanalysis of probability estimations and horribleness and coping ratings during the training phase when the condition manipulation was introduced. These measures were taken at the start of the training phase for participants in both conditions (which we compared by a Group \times Condition analysis of these items: see Predictions for Feared Outcome analyses). However, they were only taken at the end of the training phase for individuals in the cognitive restructuring condition because we were concerned that asking individuals in the distraction condition to rerate these items might have served as a form of cognitive restructuring. Thus, we ran Group \times Phase (pre- versus posttraining phase) ANOVAs for the probability estimations and horribleness and coping ratings only of individuals in the cognitive restructuring condition.

Measures of Cognition: Importance, Expectancy, and Evaluation

Importance and Expectancy ratings. In order to examine between-group differences in prespeech Importance and Expectancy rating items, we conducted a series of one-way ANOVAs (see Table 1). We used the False Discovery Rate (FDR) procedure (Benjamini & Hochberg, 1995) to control for Type I error, which provides greater power than other approaches (Keselman, Cribbie, & Holland, 1999). As predicted, HCM individuals anticipated that the quality of their own performance would be significantly lower than LCM subjects. There were no significant group differences on subjects' ratings of how well they expected others to perform or how important they felt it was for them to do well on the task.

Post-Speech Evaluation ratings. A series of 2 (Group: HCM, LCM) \times 2 (Condition: cognitive restructuring, distraction) ANOVAs of subjects' Post-Speech Evaluation ratings were conducted to examine the impact of perfectionism level and experimental condition on subjects' evaluations of their performance and experience during the speech task (see Table 1). We again used the FDR procedure to control for Type I error. There was a significant group effect for subjects' retrospective ratings of how anxious they had been while speaking. Overall, HCM subjects recalled being significantly more anxious during the speech than LCM subjects. We also found a significant condition effect for subjects' retrospective ratings of how anxious they had been during the speech, $F(1, 59) = 4.29, p < .05$. Subjects who received cognitive restructuring reported feeling significantly less anxious ($M = 49.33$;

TABLE 1
MEAN MEASURES OF COGNITION RELATED TO IMPORTANCE, EXPECTANCY,
AND EVALUATION PRE- AND POST-SPEECH

Item	Group		<i>F</i> ^a
	HCM	LCM	
Pre-Speech Importance and Expectancy Ratings			
How Well Others Will Perform	56.33 (14.26)	54.67 (14.08)	0.21
How Well Self Will Perform	37.00 (20.54)	52.67 (21.49)	8.34**
Importance of Task	42.67 (19.99)	32.00 (19.37)	4.41
Post-Speech Evaluation Ratings			
Anxiety	63.83 (20.75)	46.67 (24.26)	9.02**
Ability to Communicate	46.83 (25.68)	45.40 (22.26)	0.06
Satisfaction with Performance	48.50 (23.24)	42.33 (22.54)	1.08
Enjoyment of Task	37.33 (26.90)	29.67 (26.32)	1.21
How Well Should Have Performed	54.00 (19.23)	57.67 (20.12)	0.06

Note. Values in parentheses are standard deviations. ^a $F(1, 58)$ for Pre-Speech Importance and Expectancy Ratings; $F(1, 59)$ for Post-Speech Evaluation Ratings.

** $p < .01$.

$SD = 23.48$) than subjects assigned the distraction task ($M = 61.17$; $SD = 23.40$). The analyses for the remaining items did not yield any significant effects (see Table 1).

Follow-Up Speech Evaluation ratings. In order to examine participants' evaluations of their speech task after a period of time, we conducted a series of 2 (Group: HCM, LCM) \times 2 (Condition: cognitive restructuring, distraction) ANOVAs for the Follow-Up Speech Evaluation ratings taken 1 to 2 weeks later, available for 40 of the 60 subjects (LCM $n = 23$; HCM $n = 17$; see Table 2). We again used the FDR approach to control for Type I error. A chi-square analysis of rates of response across CM groups did not yield a significant effect, indicating that individuals in both the LCM and HCM groups were equally likely to have returned their follow-up evaluations.

For those questionnaires returned, we found a significant group effect for subjects' reports of how bothered they continued to be by thoughts about the speech, with HCM individuals rating themselves as significantly more bothered than LCM individuals. We also found significant group effects for how well participants felt they had been able to communicate what they wanted to

TABLE 2
MEAN FOLLOW-UP GLOBAL RATINGS

Item	Group		<i>F</i> (1, 39)
	HCM (<i>N</i> = 17)	LCM (<i>N</i> = 23)	
Bothered by Speech-Related Thoughts	32.94 (33.50)	9.22 (11.97)	8.77**
Ability to Communicate	34.12 (21.81)	50.87 (21.30)	7.02*
Satisfaction with Performance	36.47 (22.34)	51.30 (26.51)	4.42
Enjoyment of Task	18.24 (23.25)	39.13 (27.78)	7.10*
How Well Should Have Performed	59.41 (17.49)	57.27 (21.86)	.01

Note. Values in parentheses are standard deviations.

p* < .05; *p* < .01.

say in the speech. HCM subjects rated themselves as less able to communicate than did LCM subjects. Finally, we found a significant group effect for how much subjects enjoyed giving the speech, such that the ratings of HCM subjects indicated that they enjoyed the task significantly less than did LCM subjects. There were no significant effects for subjects' follow-up ratings of how well they felt they should have performed or with their satisfaction with their performance.¹

Measures of Cognition: Speech-Related Concerns

Predictions for feared outcome. We wanted to examine whether there would be group differences in predictions for their most feared outcome chosen from the SRCQ. We ran a series of 2 (Group: HCM, LCM) × 2 (Condition: cognitive restructuring, distraction) ANOVAs for the items included in the scripts for both experimental conditions prior to the speech: the probability estimation for their feared outcome, the number of speeches given in the past, and the horribleness rating for their feared outcome (see Table 3), using the FDR approach to control for Type I error. Significant group effects were revealed for probability estimation and horribleness ratings, as HCM subjects gave significantly higher probability estimations and horribleness ratings

¹ Given that the ANOVA is not robust when cell sizes are unequal, we conducted Mann-Whitney *U* tests which can be used with two samples of unequal numbers (Huck, Cormier, & Bounds, 1974) to examine group differences for all follow-up questionnaire items. Each of the items that was significant using the ANOVA was also significant using the Mann-Whitney test.

TABLE 3
MEAN GROUP RESPONSES TO PREDICTIONS FOR FEARED OUTCOME MEASURES

Item	Group		<i>F</i> (1, 56)
	HCM	LCM	
Probability Estimation	73.67 (16.29)	54.17 (27.23)	11.67**
Number of Speeches	5.37 (5.25)	9.08 (13.21)	2.02
Horribleness Rating	40.42 (22.19)	20.37 (21.94)	11.98**

Note. Values in parentheses are standard deviations.

** $p < .01$.

than did LCM individuals. No significant effects were found for the number of past speeches reported. As expected, there were no significant effects of condition since the experimental manipulation had not yet occurred.

Probability estimations and horribleness and coping ratings for cognitive restructuring only. In order to examine how the cognitive restructuring intervention affected participants' predictions about the impending speech task, we ran a series of 2 (Group: HCM, LCM) \times 2 (Phase: pre-, posttraining phase) repeated-measures ANOVAs for the probability estimations and horribleness and coping ratings (see Table 4). We did not gather these data during the posttraining phase for subjects in the distraction condition; thus, we only included subjects who received cognitive restructuring in these analyses. We found a significant effect of phase for probability estimations. Overall, revised probability ratings for speech expectations, which were obtained after the cognitive restructuring procedure, were significantly lower than original ratings.

For horribleness ratings of subjects' most feared prediction item, we found a significant interaction between group and phase (see Table 4). Follow-up analyses revealed that at the prerestructuring phase, subjects high in CM reported significantly higher horribleness ratings than subjects low in CM, $F(1, 28) = 6.64, p < .05$. After restructuring, however, there was no significant difference between the horribleness ratings given by individuals high and low in CM.

Lastly, for the ratings of ability to cope with the most feared prediction, we found a significant interaction between group and phase (see Table 4). The significant interaction appears to have resulted from the fact that while LCM subjects had a small but significant increase in their coping ratings from before to after restructuring, HCM subjects reported a much larger increase in their coping ratings.

SRCQ. We conducted a series of 2 (Group: HCM, LCM) \times 2 (Condition: cognitive restructuring, distraction) \times 2 (Phase: pre-, postspeech) repeated-measures ANOVAs of subjects' scores on the SRCQ in order to examine the

TABLE 4
PROBABILITY ESTIMATIONS AND HORRIBLENESS AND COPING RATINGS FOR THE COGNITIVE
RESTRUCTURING TRAINING CONDITION ONLY

Phase	Group		
	HCM	LCM	$F(1, 28)$
Probability Estimations			
Pretraining	73.67 (16.29)	54.17 (27.25)	Group (G) = 0.15 Phase (P) = 21.74*** $G \times P = 1.32$
Posttraining	43.67 (29.12)	45.13 (33.96)	
Horribleness Ratings			
Pretraining	40.83 (20.63)	19.40 (24.72)	Group (G) = 4.52* Phase (P) = 56.62*** $G \times P = 9.29^{**}$
Posttraining	16.27 (16.88)	9.00 (14.37)	
Coping Ratings			
Pretraining	64.67 (16.74)	73.33 (26.30)	Group (G) = 0.08 Phase (P) = 37.16*** $G \times P = 7.82^{**}$
Posttraining	85.33 (10.93)	81.00 (27.92)	

Note. Values in parentheses are standard deviations.

* $p < .05$; ** $p < .01$; *** $p < .001$.

impact of perfectionism and experimental condition on participants' negative predictions about the speech. We found a significant group effect, $F(1, 56) = 19.61, p < .001$, as well as a significant main effect of phase, $F(1, 56) = 5.25, p < .05$. Subjects high in CM gave significantly higher ratings than subjects low in CM, and on average, ratings for HCM and LCM subjects were significantly lower postspeech than prespeech (HCM pretraining $M = 3.99, SD = 1.23$; postrating $M = 3.72, SD = 1.39$; LCM pretraining $M = 2.63, SD = 1.10$; postrating $M = 2.42, SD = 1.14$). There were no significant effects involving condition.

Ratings of Anxiety and Negative Affectivity

Manipulation check for anxiety ratings after learning about the speech. A 2 (Group: HCM, LCM) \times 2 (Phase: baseline, preparation) repeated-measures ANOVA was conducted for subjects' SUDS ratings prior to (baseline) and after (preparation) learning about the speech task (see Figure 1). A main effect of phase was revealed, $F(1, 58) = 70.25, p < .001$, with all sub-

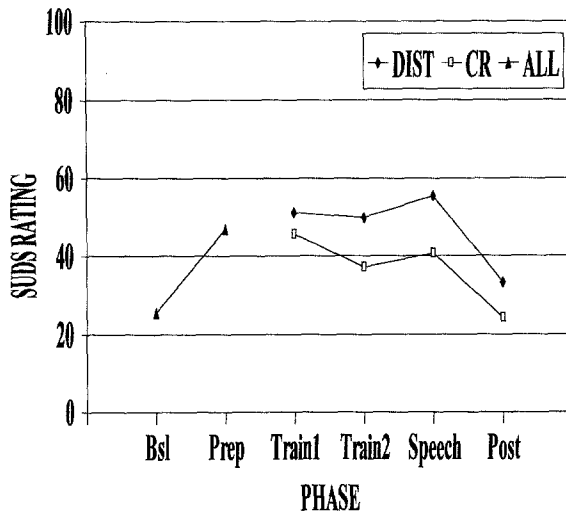


FIG. 1. SUDS ratings during the experimental session (CR = cognitive restructuring condition; DIST = distraction condition; ALL = all participants; Bsl = baseline phase; Prep = preparation phase; Train1 = pretraining phase; Train2 = posttraining phase; Speech = speech phase; Post = post-speech phase).

jects reporting a significant increase in their SUDS ratings from baseline to the preparation phase.

SUDS ratings: Training, speech, and postspeech phases. In order to examine SUDS ratings across the experimental session, a 2 (Group: HCM, LCM) \times 2 (Condition: cognitive restructuring, distraction) \times 4 (Phase: pretraining, posttraining, speech, postspeech) analysis of covariance (ANCOVA) was conducted for SUDS ratings, controlling for baseline ratings (see Figure 1). The SUDS ratings were averaged for the speech and postspeech phases during which multiple SUDS ratings were gathered. We found significant main effects for both condition, $F(1, 55) = 6.72, p < .05$, and phase, $F(3, 168) = 42.17, p < .001$, such that SUDS ratings were significantly higher in the distraction condition than in the cognitive restructuring condition and SUDS ratings were highest during the speech phase and lowest during the postspeech phase.

Ratings of negative affect: PANAS. Two separate 2 (Group: HCM, LCM) \times 2 (Condition: cognitive restructuring, distraction) \times 2 (Phase: pre-, postspeech) repeated-measures ANOVAs were performed for the PA and NA subscales of the PANAS. We found no significant effects for the PA subscale. We did find a significant group effect for NA, $F(1, 56) = 10.88, p < .01$. Subjects with high CM reported significantly more NA, both upon arrival to the laboratory and after the speech ($M = 8.00, SD = 6.68$; and $M = 9.97, SD = 7.66$, respectively), than did subjects with low CM ($M = 4.93, SD = 4.41$; and $M = 5.23, SD = 4.72$, respectively).

Audience Ratings

We found significant correlations between the two audience members' perceptions of speakers' anxiety ($r = .68$; $p < .001$) and quality of speech ($r = .65$; $p < .001$). We averaged the scores of the two observers for each variable to create one composite measure for anxiety and one composite measure of quality. Using these measures, we ran a 2 (Group: HCM, LCM) \times 2 (Condition: cognitive restructuring, distraction) ANOVA of audience perceptions of speakers' anxiety and quality of speech. No significant effects were revealed.

Discussion

Our results indicate that the HCM sample in this study responded in a manner consistent with the literature on perfectionists' responses to evaluative threat. HCM individuals rated their ability to perform well as significantly lower than LCM subjects and they reported being significantly more bothered by thoughts about negative speech-related outcomes, as measured by the SRCQ. Further analysis of participants' ratings for their most feared outcome found that the HCM group rated this prediction as being more likely to happen and a more horrible experience if it were to happen than LCM individuals. Finally, we found that individuals with HCM reported greater negative affectivity on the PANAS than individuals low in CM, both upon arrival to the laboratory as well as after the speech task. These reactions occurred despite the absence of group differences in audience members' ratings of quality and speaker anxiety.

The purpose of this investigation was to explore whether a brief cognitive restructuring intervention could mitigate the negative affective and cognitive responses of HCM individuals. We found it had a few interesting effects. This manipulation resulted in significantly lower probability and horribleness ratings for subjects' most feared prediction as well as significantly greater ratings of ability to cope if it were to occur. The effect of the cognitive restructuring was more notable for HCM than LCM individuals. For example, although HCM subjects reported significantly higher horribleness ratings prior to the cognitive restructuring exercise, both groups' ratings were significantly lower and not different from one another following the intervention. Subjects' ratings of their ability to cope with their most feared prediction also revealed a Group \times Phase interaction. Following cognitive restructuring, subjects reported feeling significantly more able to cope than they had prior to the restructuring, with subjects in the HCM group evidencing a more dramatic increase in their coping ratings.

Subjects receiving cognitive restructuring reported decreased anxiety ratings as well. Once the training phase was introduced, we found a significant effect of condition on SUDS ratings for the duration of the session. On average, participants reported lower anxiety in the cognitive restructuring versus

distraction condition. This pattern of results was replicated in our Post-Speech Evaluation Rating item, which asked subjects to rate how anxious they were during the speech. Thus, our SUDS data show the consistency and stability of the effects of cognitive restructuring on self-reported anxiety for the entirety of the experimental session. Given that we found no significant interaction between group and condition for any dependent measure, our data suggest that the cognitive restructuring intervention was not any more or less effective for perfectionists.

Unlike the SUDS data, scores from the NA subscale of the PANAS evidenced no condition effect. Instead, we found a significant group effect with HCM subjects reporting significantly higher NA than LCM subjects both prior to and after the speech task. Similarly, we found a group effect, but no condition effect, on our Speech-Related Concerns Questionnaire. Individuals in the HCM group reported being significantly more bothered by worrisome thoughts related to their performance during the speech task.

These findings present an interesting conundrum. Given that the target of intervention during restructuring is negative automatic thoughts, why did we fail to find an effect of condition on our speech-related thoughts questionnaire? It is possible that the failure of the SRCQ to reflect a condition effect may be an artifact of its instructions. Using this scale, participants are told to rate how "bothersome" their thoughts were. Perhaps the frequency of these negative cognitions was not affected by the cognitive restructuring manipulation but their believability was. This may explain why the restructuring condition was associated with decreased levels of anxiety (since at least the most feared thought was now less believable or threatening), although the presence of negative thoughts related to the task could still be a bother. Furthermore, although we detected reliable decrements in self-reported anxiety for those individuals who were primed with the cognitive restructuring exercise, the brevity and specificity of our intervention (an 8-minute restructuring exercise focused on one particular worrisome prediction) may have limited its impact on these other cognitive and affective variables.

The cognitive therapy model is a skill-based approach that requires considerable training (Beck, 1995; Hofmann & DiBartolo, 1997). Only repeated and extended practice will result in clinical change, as clients begin to modify their core beliefs and test their predictions through behavioral practices. It may be that perfectionists' tendencies to be self-critical and to set unrealistic goals (Ferguson & Rodway, 1994) during the course of treatment results in limited therapeutic improvement. We found that individuals high in CM were significantly more dissatisfied with their performance during the laboratory speech task, even up to 1 week after their participation. This would also suggest the need for repeated and continued practice with cognitive techniques in order to prevent perfectionists from evaluating their experiences and performance in a negative and unrealistic way. As these skills are mastered, change on global aspects of cognitive and emotional functioning will likely result, as

has been shown in a variety of treatment outcome studies (cf. Gould et al., 1997; Gould et al., 1996; Whittal et al., 1999). Sharing this time line for expected change with perfectionists may also be particularly important so they do not become discouraged as they practice their cognitive skills.

It is important to note that the demographics of our study were limited and our sample size in each cell was small, possibly precluding the detection of certain effects such as the differential effectiveness of cognitive restructuring for HCM vs. LCM participants. It is possible that the effects of our cognitive restructuring manipulation may have resulted from expectancy or demand characteristics. For example, individuals in the cognitive restructuring condition were told that they might feel calmer through an examination of their thoughts. Participants in the distraction condition were simply told that their assigned task might help keep their minds off the task, which may have produced no clear expectancy effect. Future research using a similar paradigm would need to equate the two conditions in terms of expectancy and perhaps measure the credibility of each intervention. In addition, although we gave audience members instructions about their behavior, we included no external check to be certain that they had not contaminated their responses during the speech task. Finally, given the strong relationship between perfectionism and other forms of negative affectivity, such as social anxiety (cf. Juster et al., 1996; Kawamura, Hunt, Frost, & DiBartolo, in press), it is not clear whether our cognitive restructuring manipulation had its effect by explicitly influencing the subjects' perfectionistic concerns rather than influencing their social anxiety.

The results of our study provide some promising support for the benefits of cognitive restructuring for perfectionists (Burns, 1980). It may be that clinicians have to be particularly sensitive to the delivery of the cognitive therapy model with perfectionists, warning them not to evaluate progress harshly. Future research in this area using clinical samples would be quite useful.

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