Cognitive Reappraisal Self-Efficacy Mediates the Effects of Individual Cognitive-Behavioral Therapy for Social Anxiety Disorder

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Abstract

Objective—To examine whether changes in cognitive reappraisal self-efficacy (CR-SE) mediate the effects of individually-administered Cognitive-Behavioral Therapy (I-CBT) for social anxiety disorder (SAD) on severity of social anxiety symptoms.

Method—A randomized controlled trial in which 75 adult patients (21–55 years of age; 53% male; 57% Caucasian) with a principal diagnosis of generalized SAD were randomly assigned to 16 sessions of I-CBT ($n = 38$) or a waitlist control (WL) group ($n = 37$). All patients completed self-report inventories measuring cognitive reappraisal self-efficacy (CR-SE) and social anxiety symptoms at baseline and post-I-CBT/post-WL, and I-CBT completers were also assessed at 1-year post-treatment.

Results—Compared to WL, I-CBT resulted in greater increases in CR-SE and greater decreases in social anxiety. Increases in CR-SE during I-CBT mediated the effect of I-CBT on social anxiety. Gains achieved by patients receiving I-CBT were maintained 1-year post-treatment, and I-CBT-related increases in CR-SE were also associated with reduction in social anxiety at the 1-year follow-up.

Conclusions—Increasing CR-SE may be an important mechanism by which I-CBT for SAD produces both immediate and long-term reductions in social anxiety.

Keywords

social anxiety; cognitive-behavioral therapy; emotion regulation; cognitive reappraisal; self-efficacy

Social anxiety disorder (SAD) is highly prevalent (12.1%) (Kessler et al., 2005), has an early onset (Otto et al., 2001), low rates of remission (Keller, 2003), is associated with significant impairment in social, educational, and occupational functioning (Stein & Kean, 2000), and results in substantial societal burden (Acarturk et al., 2009). SAD is characterized by excessive fear of humiliation and embarrassment (Stein & Stein, 2008). Recent studies have demonstrated that SAD is associated with exaggerated emotional reactivity and deficits in cognitive forms of emotion regulation (Goldin, Manber, Hakimi, Canli, & Gross, 2009;

Goldin, Manber-Ball, Werner, Heimberg, & Gross, 2009). Although several psychosocial and pharmacological treatments are available for SAD, one of the most promising is Cognitive-Behavioral Therapy (CBT).

COGNITIVE BEHAVIORAL THERAPY FOR SAD

CBT (Beck, Emery, & Greenberg, 1985) is an empirically-supported psychosocial intervention for anxiety disorders. Evidence suggests that individually-administered forms of CBT (I-CBT) for SAD (Clark, 2001; Hope, Heimberg, Juster, & Turk, 2000) are efficacious (Ledley et al., 2009), equal to (Fedoroff & Taylor, 2001) or more efficacious (Stangier, Heidenreich, Peitz, Lauterbach, & Clark, 2003) than group-administered CBT, and superior to combinations of fluoxetine and self-exposure (Clark et al., 2003), exposure and applied relaxation (Clark et al., 2006), and routine psychiatric treatment with medication and emotional support (Mortberg, Clark, Sundin, & Wistedt, 2007).

Cognitive models of SAD (Clark & Wells, 1995; Heimberg, Brozovich, & Rapee, 2010; Hofmann, 2007) suggest that a key component of CBT is training patients to restructure distorted beliefs during exposure to feared social situations. Cognitive restructuring directly counters emotion dysregulation which has been identified as a fundamental feature of mood and anxiety disorders (Campbell-Sills & Barlow, 2007). One crucial component of cognitive restructuring is thought to be cognitive reappraisal (CR), which involves modifying the meaning of a stimulus or context that gives rise to an emotion. CR can modify emotional reactions to stressful, anxiety-provoking situations and can lead to psychological flexibility and emotional well-being (Gross, 2007).

COGNITIVE REAPPRAISAL SELF-EFFICACY IN SAD

Self-efficacy beliefs have been linked to motivation (Bandura & Cervone, 1986), cognitive and behavioral change (Bandura, 1977), and enhanced affect regulation and psychosocial functioning (Bandura, Caprara, Barbaranelli, Gerbino, & Pastorelli, 2003). One particular type of self-efficacy is CR self-efficacy (CR-SE), which refers to the belief that one can successfully implement CR when one wishes to regulate one's emotions (Goldin et al., 2009).

Compared to healthy control participants, patients with SAD have shown deficits in CR ability (Goldin, Manber, et al., 2009; Goldin, Manber-Ball, et al., 2009), as well as lower levels of CR self-efficacy (Goldin, Manber-Ball, et al., 2009; Werner, Goldin, Ball, Heimberg, & Gross, 2011). In socially anxious individuals, lower self-efficacy predicts poorer behavioral performance in speech tasks (Rodebaugh, 2006) and greater subjective anxiety and poorer perceived performance in social role play tests (Gaudiano & Herbert, 2007). Lower self-efficacy is related to greater severity of social anxiety and is believed to increase the use of dysfunctional strategies for coping with anxiety in social situations (Thomasson & Psouni, 2010). Although deficits in CR-SE have been documented in both children and adults with anxiety disorders (Carthy, Horesh, Apter, & Gross, 2010; Goldin, Manber-Ball, et al., 2009; Werner et al., 2011), and changes in self-efficacy during CBT have been associated with treatment outcome in both adolescent (Gaudiano & Herbert, 2007) and adult SAD (Delsignore, Carraro, Mathier, Znoj, & Schnyder, 2008), the extent to which CBT enhances CR-SE and how changes in CR-SE are related to immediate and longer-term changes in severity of social anxiety symptoms in patients with SAD in not known.

THE PRESENT STUDY

Our aim was to examine whether changes in CR-SE mediate the effects of I-CBT (vs. a WL control) on social anxiety symptoms. We used a recently formulated approach to investigate potential mediation (Kraemer, Kiernan, Essex, & Kupfer, 2008). We expected that (1) compared to WL, I-CBT would result in significantly increased CR-SE and reduced social anxiety and (2) increased CR-SE during I-CBT would explain the change in severity of social anxiety. We expected to observe (3) maintenance of I-CBT treatment gains at 1-year post-treatment and tested whether CBT-related increases in CR-SE were associated with these effects.

METHOD

PARTICIPANTS

Patients were recruited for a randomized controlled trial of I-CBT for SAD. After screening 436 potential patients, 110 completed a diagnostic interview to determine clinical status (Figure 1), and 35 were excluded due to current pharmacotherapy or psychotherapy, past CBT, history of medical disorders or head trauma (because functional magnetic resonance imaging was employed in other portions of the study not reported here), and current major depressive disorder and bipolar affective, substance abuse, post-traumatic stress, obsessive-compulsive, or thought disorders, or incomplete baseline assessments. The remaining 75 patients who met *DSM-IV* (APA, 1994) criteria for a principal diagnosis of generalized SAD were randomly assigned to either immediate I-CBT for SAD ($n = 38$) or a waitlist (WL) control group ($n = 37$) who were offered I-CBT after the waiting period (see Table 1 for demographics and psychiatric comorbidity). WL patients entered I-CBT after completing WL. Thus, there is no 1-year post-WL assessment for these patients. The study was approved by the Institutional Review Board of Stanford University.

PROCEDURE

Patients were recruited through clinician referrals and community bulletin boards. After determining eligibility and completing informed consent procedures, patients were randomly assigned to immediate I-CBT versus WL groups using a biased coin randomization (Efron, 1971) procedure that reduces potential confounds related to unequal group sizes at different time points during a longitudinal study. Ph.D.-trained clinical psychologists conducted diagnostic interviews using the Anxiety Disorders Interview Schedule for DSM-IV (ADIS-IV; DiNardo, Brown, & Barlow, 1994) which has excellent inter-rater reliability (Brown, Di Nardo, Lehman, & Campbell, 2001). Patients met diagnostic criteria for generalized SAD defined as, based on rating scales in the ADIS-IV, greater than moderate fear for 5 or more distinct social situations and a clinician's severity rating of 4 or greater for SAD on these 0–8 scales.

MEASURES

To measure CR-SE, we used a scale derived from the Emotion Regulation Questionnaire (ERQ; Goldin, Manber-Ball, et al., 2009; Gross & John, 2003), which has good reliability and construct validity (Gross & John, 2003). The 8-item *self-efficacy* subscale measures self-efficacy of cognitive reappraisal during the last month. A 7-point Likert-type scale is used for rating "How capable you are of using reappraisal when you want to…?", with a range from 1 (*strongly disagree*) to 7 (*strongly agree*) for each statement (e.g., "Control my emotions by changing the way I think about the situation I'm in"). Ratings are summed for a total score (range = 8–56). Cronbach's alpha for the self-efficacy subscale was .95 in this study.

To measure severity of social anxiety, we used the 24-item Liebowitz Social Anxiety Scale-Self-Report (LSAS-SR; Fresco et al., 2001; Liebowitz, 1987), which consists of questions that assess social interaction situations (11 items) and performance situations (13 items). A 4-point Likert-type scale is used for ratings of fear and of avoidance, with a range from 0 (*none* and *never*, respectively) to 3 (*severe* and *usually*, respectively) for situations during the past week. Ratings are summed for a total LSAS-SR score (range = 0–144). The LSAS-SR has excellent reliability and construct validity (Baker, Heinrichs, Kim, & Hofmann, 2002), and its internal consistency was excellent in this study (Cronbach's alpha = .91).

INDIVIDUAL-COGNITIVE-BEHAVIORAL THERAPY FOR SAD

I-CBT was delivered using *Managing Social Anxiety: A Cognitive-Behavioral Therapy Approach*, a manualized treatment protocol which included a therapist guide (Hope, Heimberg, & Turk, 2006) and a client workbook (Hope et al., 2000) and consisted of 16 individual one-hour sessions (except for the first in-session exposure session which lasted 1.5 hours) administered over 4 months. The treatment covers: (1) psychoeducation and orientation to CBT; (2) cognitive restructuring skills; (3) graduated exposure to feared social situations, both within session and *in vivo* as homework; (4) examination and modification of core beliefs; and (5) relapse prevention and termination.

All four study therapists had to achieve proficiency in implementing I-CBT with training cases prior to treating study patients. Therapists were trained and supervised by Richard Heimberg, PhD, an expert in CBT for SAD and one of the developers of the treatment protocol used here. All 16 therapy sessions for each client were digitally recorded and rated on several items by a team of independent raters familiar with CBT for SAD. Raters used a 5-point Likert-type scale ranging from 1 (*ineffective*) to 5 (*extremely effective*) for treatment adherence using the *Cognitive-Behavioral Therapy for Social Anxiety Disorder: Therapist Adherence Scale* (Hope, VanDyke, Heimberg, Turk, & Fresco, 2001). Because there were multiple raters who provided the ratings of the 5 components per therapy case, we used a one-way random effects model with absolute agreement to compute the average measures intraclass correlation (ICC = .81). Ratings for each of the five components had to be 4 to be considered "in protocol." The four therapists achieved this standard (overall M = 4.61, SD = 0.24), and a one-way analysis of variance (ANOVA) showed no differences among therapists ($F(3,33) = 0.11$, $p = .96$).

STATISTICAL ANALYSIS

The primary analysis was the intent-to-treat (ITT) analysis, using the last observation carried forward method to account for missing data at post-CBT/WL. We also conducted a per-protocol treatment completer analysis, although the advantages of randomization are lost here. To investigate the overall treatment effect of I-CBT versus WL, we used a two-sample t-test examining pre-post treatment change. We report effect sizes as Cohen's d (Cohen, 1988), partial eta^2 (η_p^2) (Pierce, Block, & Aguinis, 2004) with 95% exact confidence intervals (CI) (Odgaard & Fowler, 2010), and Success Rate Difference (SRD), defined as the difference between the probabilities that a randomly chosen patient from I-CBT will have a response preferable to a randomly chosen patient from WL, and the reverse, that the WL patient will have a response preferable to the I-CBT patient. SRD ranges from +1 (if every patient treated with I-CBT has a clinically preferable response to every patient in the WL) to −1 (if the reverse is true) with null value = 0. If the assumptions underlying Cohen's d apply, then SRD$=2\Phi(d/2)-1$, where $\Phi(d/2)$ is the standard normal distribution function.

To investigate whether changes in CR-SE mediate the effect of I-CBT on social anxiety symptoms, we conducted a mediation analysis (Kraemer et al., 2008) using a linear model that included the main effects of treatment group (G) and mediator (M), as well as the G ×

M interaction. G, the treatment group assigned at baseline, was coded as 0.5 and −0.5. The pre-to-post change in M temporally followed G, and the outcome variable (O) was measured after treatment completion. M was centered at zero (i.e., the value it has pre-treatment) to make the standardized coefficient beta values (β) more interpretable. To show mediation, it must be demonstrated that G and M are correlated, and that in the linear model, either the main effect of M or the interactive effect of $G \times M$ is statistically significant. Only treatment completer data were used to assure temporal precedence.

RESULTS

PRELIMINARY ANALYSES

Patients in I-CBT and WL groups did not differ significantly in gender, age, education, ethnicity, yearly income, marital status, current or past Axis I comorbidity, past psychotherapy or pharmacotherapy, age at onset, and years since onset (Table 1). Six patients (16%) dropped during immediate I-CBT[1], and 5 patients (14%) dropped during WL.

I-CBT OVERALL EFFECTS ON CR-SE AND SOCIAL ANXIETY

Intent-to-treat analysis—The 2 Group (I-CBT, WL) $\times$ 2 Time (baseline, post-treatment) repeated-measures analysis of variance (ANOVA) yielded significant interactions of group by time for social anxiety ($F(2,73) = 20.0$, $p < .001$, $d = 1.05$, $\eta_p^2 = .21$, 95% CI [.19, .65]) and CR-SE ($F(2,67) = 15.3$, $p < .001$, $d = 0.96$, $\eta_p^2 = .19$, 95% CI [.13, .53]) (Table 2). To examine differential pre-to-post change, we conducted two-sample t-tests. Compared to WL, I-CBT resulted in greater decreases in social anxiety (I-CBT ΔLSAS-SR = −29.65, $SD = 26.66$; WL ΔLSAS-SR = −8.18, $SD = 12.39$; t(75)=4.47, $p < .001$, $d = 1.03$, SRD = 0.78) and greater increases in CR-SE (I-CBT ΔCR-SE = 9.0, $SD = 11.94$; WL ΔCR-SE = −1.77, $SD = 10.62$; $t(66) = 3.87$, $p < .001$, $d = 0.95$, SRD = 0.27).

Completers analysis—The same analysis in treatment completers resulted in similar interactions of group by time for social anxiety ($F(2,57) = 31.0$, $p < .001$, $d = 1.48$, $\eta_p^2 = .35$, 95% CI [.32, .64]) and CR-SE ($F(2,45) = 26.1$, $p < .001$, $d = 1.52$, $\eta_p^2 = .37$, 95% CI [.31, .66]) (Table 2). Two-sample t-tests showed that, compared to WL, I-CBT resulted in greater decreases in social anxiety (I-CBT ΔLSAS-SR = −38.74, $SD = 26.12$; WL ΔLSAS-SR = −9.80, $SD = 12.45$; $t(57) = 5.57$, $p < .001$, $d = 1.41$, SRD =0.83) and greater increases in CR-SE (I-CBT ΔCR-SE = 15.55, $SD = 12.03$; WL ΔCR-SE = −2.12, $SD = 11.84$; $t(45) = 5.11$, $p < .001$, $d = 1.48$, SRD = 0.14).

CR-SE AS A MEDIATOR OF I-CBT AND CHANGES IN SOCIAL ANXIETY

Using data from treatment completers only, as shown above, group assignment (G) at baseline to I-CBT vs. WL was associated with differential change in CR-SE satisfying the first criterion for showing mediation. The linear regression ($F(3,44) = 3.58$, $p = .022$, $R^2 = .21$) demonstrated a main effect of M (CR-SE), but no interaction of $G \times M$ on post-CBT/WL social anxiety (Table 3). Thus the final criterion for mediation is satisfied. Moreover, the treatment effect on change in social anxiety, shown significant when CR-SE was ignored above, is now non-significant, indicating complete mediation. The effect size of the mediator far exceeded the main effect of treatment group (Figure 2).

One patient was dropped during I-CBT after determining that he lied about his symptoms.

LONGER-TERM I-CBT EFFECTS

Paired *t*-tests showed a small improvement on severity of social anxiety ($t(40) = 2.67$, $p = .01$) and no change in CR-SE ($t(29) = 0.53$, $p = .60$) from immediately post-I-CBT to 1-year thereafter. Thus, I-CBT-related gains were maintained up to 1-year post-I-CBT. We also observed that CR-SE measured immediately post-I-CBT was associated with reductions in social anxiety 1-year post-treatment ($t(37) = -.43$, $p = .008$).

DISCUSSION

The primary goal of this study was to investigate whether treatment-related changes in CR-SE mediate the effect of I-CBT for SAD on social anxiety symptoms.

I-CBT FOR SAD

I-CBT reduced social anxiety symptoms at a level comparable to a prior study of I-CBT for SAD (Ledley et al., 2009). I-CBT effect sizes here exceeded those reported in a recent meta-analysis of a variety of psychological treatments for SAD ($d = 0.86$) (Powers, Sigmarsson, & Emmelkamp, 2008). Importantly, social anxiety symptom reduction was maintained at 1-year post-I-CBT, converging with prior findings of maintenance of treatment gains (Clark et al., 2006; Clark et al., 2003; Ledley et al., 2009; Mortberg et al., 2007; Stangier et al., 2003).

Other studies have found predictors of treatment outcome in SAD, including reductions in probability bias for negative social events (Smits, Rosenfield, McDonald, & Telch, 2006), self-focus, estimated probability and estimated cost of negative social events, safety behaviors (Hoffart, Borge, Sexton, & Clark, 2009), and anticipated aversive social outcomes (Hofmann, 2004). The present study showed that increases in CR-SE totally mediated the effect of I-CBT on social anxiety reduction and that the mediator effect on improvement in social anxiety was about twice as large as the main effect of treatment group. Mediator specificity was indicated by (a) an increase in CR-SE from pre-to-post-I-CBT and a slight decrease from pre-to-post-WL, and (b) no evidence that changes in social anxiety or the interaction of treatment group by changes in social anxiety mediated the effect of I-CBT on CR-SE. Additionally, increased CR-SE at post-I-CBT was associated with decreased social anxiety symptoms 1-year post-I-CBT completion.

THE ROLE OF COGNITIVE REAPPRAISAL SELF-EFFICACY

One way to conceptualize the impact of I-CBT on CR-SE is that learning how to use CR during exposure to feared situations during CBT helps to recalibrate at least two dimensions of CR: strategic behavior (i.e., actual implementation of CR) and meta-cognition (i.e., belief in one's ability to implement CR). Both of these dimensions are explicitly trained during the cognitive restructuring module (2–3 sessions) and during in-session and *in vivo* exposure exercises (last 9–10 sessions) in the *Managing Social Anxiety* protocol (Hope et al., 2006). Enhancing CR-SE in patients with SAD may drive the increased use of CR in social situations, facilitating anxiety reduction. A recent fMRI study has demonstrated that increased CR-SE is associated with increased early recruitment of CR-related brain regions (Goldin, Manber-Ball, et al., 2009). Alternatively, in alignment with other conceptualizations of self-efficacy (Borkovec, 1978), increases in CR-SE following I-CBT in patients with SAD, may reflect, rather than cause, behavioral change.

Self-efficacy has been identified as an important predictor of treatment outcome for a variety of medical and psychiatric problems, for example, breast cancer (Rottmann, Dalton, Christensen, Frederiksen, & Johansen, 2010), osteoarthritis (Benyon, Hill, Zadurian, & Mallen, 2010), nicotine addiction (Schnoll et al., 2011), substance use (Kadden & Litt, 2011), bulimia nervosa (Steele, Bergin, & Wade, 2011), and arachnophobia (Côté &

Bouchard, 2009). In the context of SAD, social self-efficacy (Gaudiano & Herbert, 2007) and therapy-specific self-efficacy (Delsignore et al., 2008) have been identified as predictors of CBT outcome. The present study is the first to identify CR-SE as one important mediator of I-CBT.

LIMITATIONS AND FUTURE DIRECTIONS

The focus of this study was on the role of CR-SE in mediating treatment outcome. Examination of I-CBT effects on the implementation of and self-efficacy regarding other emotion regulation strategies (e.g., expressive suppression, attention deployment) is necessary to determine the specificity of CR-SE as a mediator and whether changes in other emotion regulation strategies might be even more robust mediators of I-CBT outcome. In addition to self-report inventories, using experimental tasks that measure the impact of I-CBT on the implementation of different emotion regulation skills for both disorder-related and unrelated emotional probes will also be important in delineating what variables mediate or moderate treatment outcome and longer-term maintenance of new skills. Measurement of changes in emotion regulation and self-efficacy in much finer resolution during CBT may help identify different temporal patterns of change. Because it was not done in this study, inter-rater reliability of clinical diagnoses should be assessed.

Future studies that compare CBT to other active interventions may help elucidate differential mechanisms for different treatment modalities. Also, examination of how CR-SE changes during CBT for other psychiatric disorders may elucidate the role played by specific emotion dysregulation difficulties in specific disorders. To understand the longer-term effects of I-CBT, it will be important to maintain a control or comparison group and to compare responses at 12 months post-treatment completion and beyond as has been done for group CBT (Heimberg, Salzman, Holt, & Blendell, 1993).

Acknowledgments

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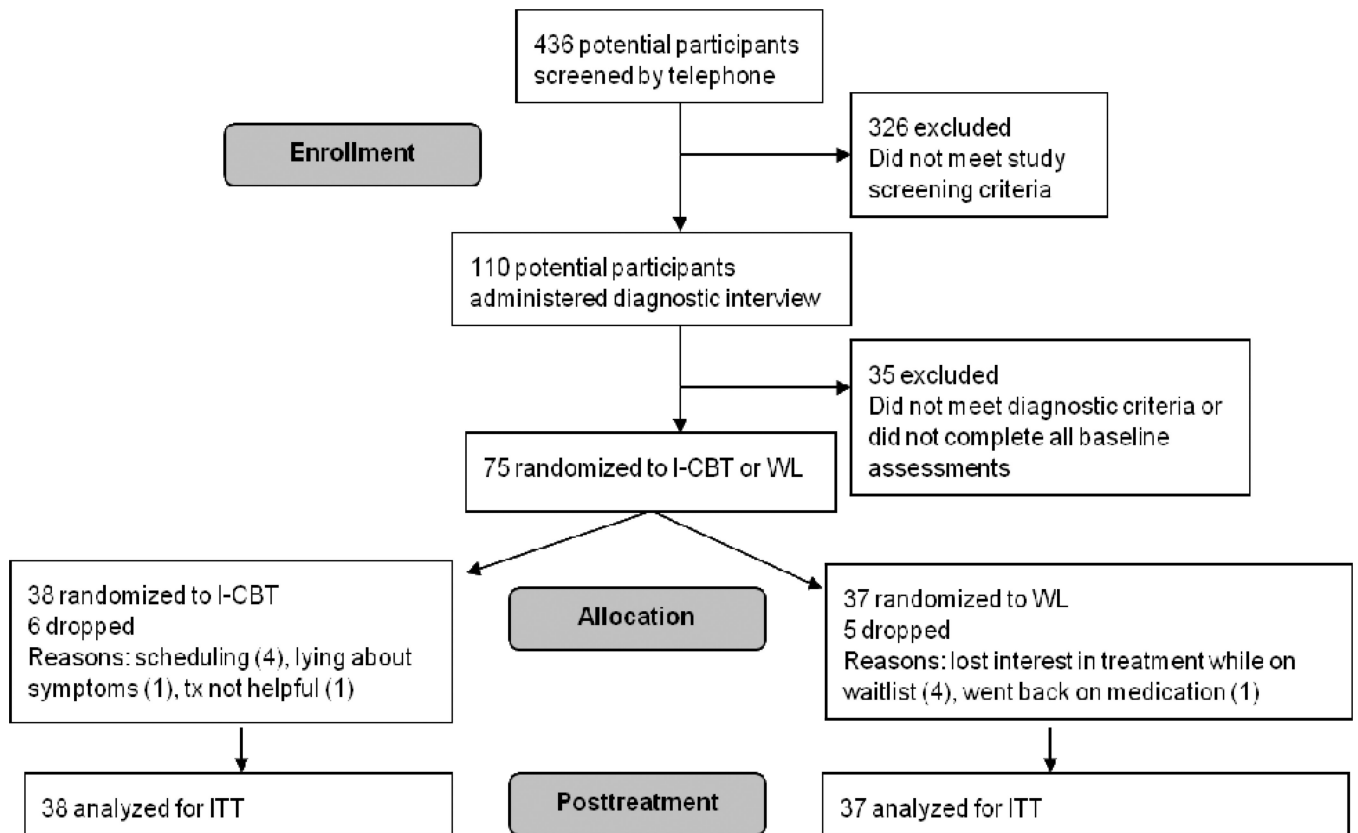
436 potential participants screened by telephone

Enrollment

326 excluded
Did not meet study screening criteria

110 potential participants administered diagnostic interview

35 excluded
Did not meet diagnostic criteria or did not complete all baseline assessments

75 randomized to I-CBT or WL

Allocation

38 randomized to I-CBT
6 dropped
Reasons: scheduling (4), lying about symptoms (1), tx not helpful (1)

37 randomized to WL
5 dropped
Reasons: lost interest in treatment while on waitlist (4), went back on medication (1)

Posttreatment

38 analyzed for ITT

37 analyzed for ITT

Figure 1.
Consolidated Standards of Reporting Trials diagram for a Randomized Controlled Trial of Individual Cognitive-Behavioral Therapy (I-CBT) vs. Waitlist (WL) Control. (ITT = Intent-to-Treat Analyses; tx = treatment).

Figure 2.
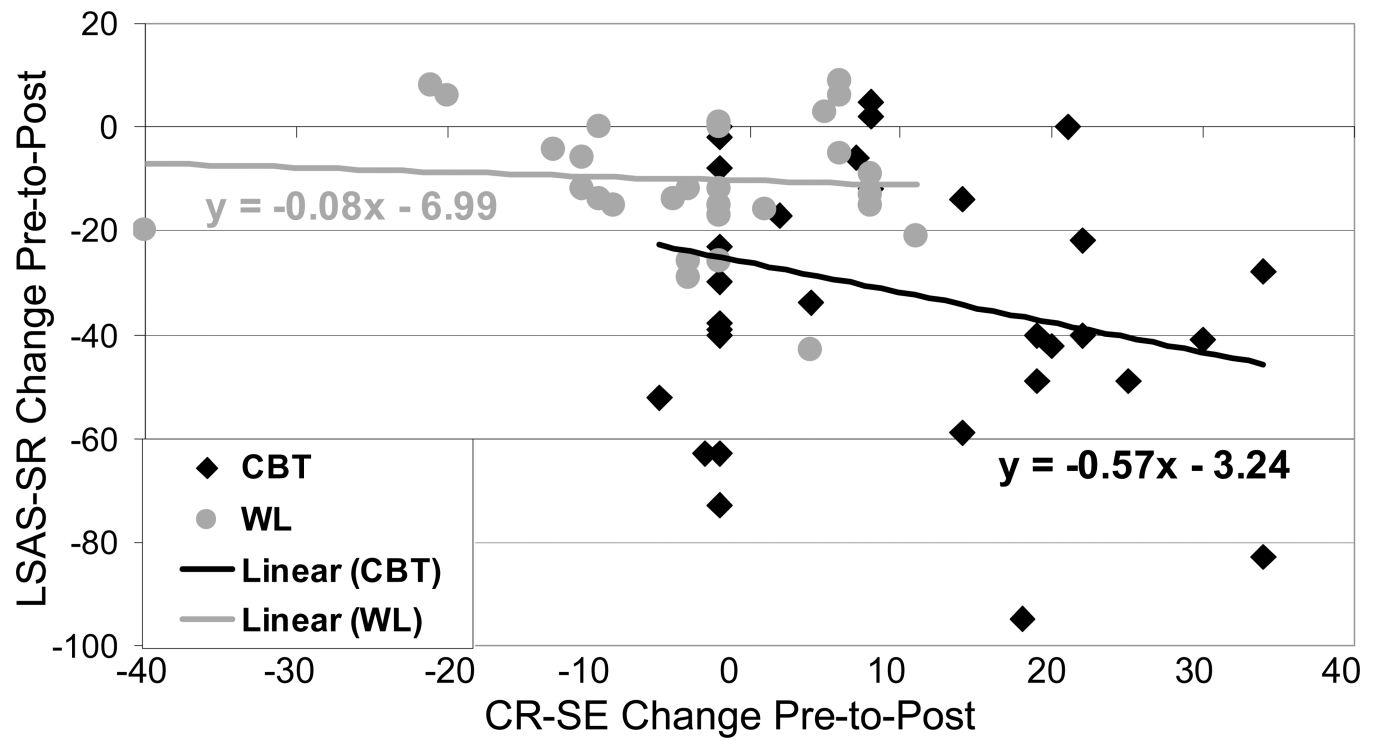Relationship of pre-to-post changes in CR-SE and LSAS-SR. Gray circles = waitlist control group, black diamonds = Individual cognitive-behavioral therapy, CR-SE = cognitive reappraisal self-efficacy, LSAS-SR = Liebowitz Social Anxiety Scale - Self-Report.

Table 1

Participant Characteristics

Variable	I-CBT $n = 38$	WL $n = 37$	t or χ^2
Gender (Males, n, %)	20 (52.6%)	20 (55.6%)	$\chi^2 = 0.24$
Age (years, $M \pm SD$)	33.4 ± 7.6	33.6 ± 10.4	$t = 0.12$
Education (years, $M \pm SD$)	16.7 ± 2.2	17.0 ± 2.5	$t = 0.55$
Ethnicity (n, % Caucasian)	22 (57.9%)	21 (56.8%)	$\chi^2 = 0.41$
Yearly income (1000s, $M \pm SD$)	73.5 ± 45.7	56.6 ± 43.7	$t = 1.43$
Marital status (n, %)			$\chi^2 = 0.78$
Single, never married	24 (63.2%)	27 (73.0%)	
Married	13 (34.2%)	7 (18.9%)	
Divorced, separated, widowed	1 (2.6%)	3 (8.1%)	
Current Axis I Comorbidity (n, %)			$\chi^2 = 2.83$
Generalized anxiety disorder	6 (15.8%)	8 (21.6%)	
Specific phobia	4 (10.5%)	1 (2.7%)	
Panic disorder	2 (5.3%)	1 (2.7%)	
Dysthymic disorder	1 (2.6%)	2 (5.4%)	
Past Axis-I Comorbidity (n, %)			$\chi^2 = 0.01$
Major depressive disorder	9 (23.7%)	7 (18.9%)	
Dysthymic disorder	0	1 (2.7%)	
Post-traumatic stress disorder	1 (2.6%)	0	
Panic disorder	0	1 (2.7%)	
Substance abuse disorder	2 (5.3%)	4 (10.8%)	
Eating disorder	0	1 (2.7%)	
Obsessive compulsive disorder	0	1 (2.7%)	
Past non-CBT Psychotherapy (n, %)	21 (52.5%)	15 (42.9%)	$\chi^2 = 1.92$
Past Pharmacotherapy (n, %)	11 (28.9%)	14 (37.8%)	$\chi^2 = 1.15$
Age at symptom onset (years, $M \pm SD$)	13.2 ± 7.9	13.0 ± 6.1	$t = 0.16$
Years since symptoms onset ($M \pm SD$)	20.4 ± 11.1	20.3 ± 12.9	$t = 0.02$

Note I-CBT = Individual Cognitive-Behavioral Therapy, WL = waitlist; M = mean, SD = standard deviation.

Table 2

Mean and SD for Liebowitz Social Anxiety Scale - Self-Report and Cognitive Reappraisal Self-Efficacy at Pre and Post I-CBT and WL for Treatment Completer and Intent-to-Treat Samples

Variable	I-CBT	WL
	$n = 38$	$n = 37$
LSAS-SR ($M \pm SD$)		
- Pre	88.3 ± 18.7	77.6 ± 17.0
- Post (Intent-to-Treat)	58.7 ± 26.7	69.4 ± 19.2
- Post (Treatment Completers)	49.0 ± 23.7	67.3 ± 19.4
- 1-year follow-up	44.0 ± 28.9	
CR-SE ($M \pm SD$)		
- Pre	27.0 ± 10.7	27.4 ± 10.6
- Post (Intent-to-Treat)	36.1 ± 10.6	25.9 ± 11.6
- Post (Treatment Completers)	41.2 ± 6.7	26.1 ± 12.1
- 1-year follow-up	38.8 ± 8.8	

Note I-CBT = Individual Cognitive-Behavioral Therapy, WL = waitlist; M = mean, SD = standard deviation.

Table 3

Cognitive Reappraisal Self-Efficacy Mediates the Effect of Individual Cognitive-Behavioral Therapy on the Severity of Social Anxiety Symptoms in Treatment Completers

	Unstandardized Coefficient *b*	SE *b*	Standardized Coefficient *β*	*p*-value
LSAS-SR				
- Intercept	66.36	4.17		
- Group	−4.37	8.34	−.10	.60
- CR-SE Change	−.69	.25	−.48	.01
- Group X CR-SE Change	−.33	.40	−.11	.51

Note. LSAS-SR = Liebowitz Social Anxiety Scale Self-Report, CR-SE = cognitive reappraisal self-efficacy