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# A Randomized Controlled Effectiveness Trial of Acceptance and Commitment Therapy and Cognitive Therapy for Anxiety and Depression

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Acceptance and commitment therapy (ACT) has a small but growing database of support. One hundred one heterogeneous outpatients reporting moderate to severe levels of anxiety or depression were randomly assigned to traditional cognitive therapy (CT) or to ACT. To maximize external validity, the authors utilized very minimal exclusion criteria. Participants receiving CT and ACT evidenced large, equivalent improvements in depression, anxiety, functioning difficulties, quality of life, life satisfaction, and clinician-rated functioning. Whereas improvements were equivalent across the 2 groups, the mechanisms of action appeared to differ. Changes in “observing” and “describing” one’s experiences appeared to mediate outcomes for the CT group relative to the ACT group, whereas “experiential avoidance,” “acting with awareness,” and “acceptance” mediated outcomes for the ACT group. Overall, the results suggest that ACT is a viable and disseminable treatment, the effectiveness of which appears equivalent to that of CT, even as its mechanisms appear to be distinct.

**Keywords:** *acceptance and commitment therapy, cognitive therapy, cognitive-behavior therapy, psychotherapy outcome, mechanisms of action*

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Cognitive-behavior therapy (CBT) as a broad approach to psychotherapy has become the most widely utilized and researched of all psychotherapeutic methods (Norcross, Hedges, & Castle, 2002). Beck and his colleagues' cognitive therapy (CT) is, in turn, the most well known and researched model among the larger family of CBT approaches (Beck, 2005). Focusing on change in distressing symptoms, CT embraces empiricism as its epistemological foundation. Systematic reviews have concluded that CT is effective for a wide range of disorders and problems (e.g., depression, anxiety syndromes, eating disorders, sexual dysfunctions), in a variety of patient populations (Beck, 1997; Hollon, Thase, & Markowitz, 2002; Nathan & Gorman, 2002; Roth & Fonagy, 2005). For example, Dobson (1989); Gaffan, Tsaousis, and Kemp-Wheeler (1995); and Robinson, Berman, and Neimeyer (1990) conducted meta-analyses of the effectiveness of CT for depression, revealing that CT was superior to wait-list control conditions, as well as various active treatment comparisons. A recent review of 16 meta-analyses found broad support for the effectiveness of CT for a range of psychological conditions, including unipolar and bipolar depression, panic disorder, obsessive-compulsive disorder, social anxiety disorder, generalized anxiety disorder, schizophrenia-linked psychotic symptoms, and bulimia nervosa (Butler, Chapman, Forman, & Beck, 2006). Relative to a variety of control conditions, including psychopharmacology, there is a substantial literature supporting the efficacy of CT (Beck, 1997). A variety of factors may limit the interpretation of results in any given outcome trial, including the type of comparison or control conditions used, the level of training and fidelity of study therapists, the appropriateness of measures, and allegiance to specific treatment approaches. Nevertheless, CT is widely considered the current gold-standard psychotherapeutic approach, particularly for mood and anxiety disorders. Whereas the efficacy of CT is firmly established, less clear are the mechanisms by which CT exerts its effect.

### **CT and Mechanisms of Action**

CT is an active, collaborative, problem-oriented, and relatively short-term treatment. The defining feature of CT is the assumption that therapeutic effects are mediated by changes in cognitions, including thoughts, beliefs, and schemas, and the corresponding emphasis on cognitive change efforts. Although cognitive therapists often supplement direct cognitive change strategies with a number of behavior change methods (e.g., exposure to anxiety-provoking stimuli, activity scheduling, and social skills training), the

fundamental purpose of even these strategies is to effect a change in dysfunctional cognitive structures (Beck, 1993; McGinn & Sanderson, 2001).

A relatively small number of studies has specifically examined the mechanisms of CT; of these, only a handful has supported the hypothesized cognitive mediators (e.g., Casey, Newcombe, & Oei, 2005; Hofmann, 2004; Smits, Powers, Cho, & Telch, 2004). For example, Hofmann (2004) found that reductions in the perceived costs associated with social interactions mediated treatment changes in both CT and exposure therapy without cognitive interventions in social anxiety disorder, supporting the cognitive model of the disorder. In some cases (e.g., Smits et al., 2004), however, the apparent support for cognitive mediation was tempered by the fact that the mediator was collected over the same time period as the dependent measure, precluding a true test of causal mediation. In fact, the majority of empirical work investigating mechanisms of action in CT have failed to support the postulated mediator (e.g., Clark, Beck, & Brown, 1989; DeRubeis et al., 1990; Teasdale et al., 2001). For example, Barber and DeRubeis (1989) found that CBT did not significantly reduce dysfunctional attitudes as measured by the Dysfunctional Attitudes Scale (Weissman & Beck, 1978). Another challenge to the cognitive mediation hypothesis derives from dismantling studies that have compared behavior therapy with and without a cognitive component. For instance, a series of studies has found that an exposure-only intervention was at least as effective as exposure plus cognitive therapy in the treatment of social anxiety disorder (Emmelkamp, Mersch, Vissia, & Van der Helm, 1985; Gelernter et al., 1991; Hope, Heimberg, & Bruch, 1995; Mattick, Peters, & Clarke, 1989; Scholing & Emmelkamp, 1993) and posttraumatic stress disorder (PTSD; Foa et al., 1999; Foa et al., 2005; Lovell, Marks, Noshirvani, Thrasher, & Livanou, 2001; Paunovic & Öst, 2001), and likewise that behavioral activation alone was as effective as (Jacobson et al., 1996) or even more effective than (Dimidjian et al., 2006) behavioral activation plus cognitive restructuring in the treatment of depression. Similarly, meta-analyses have suggested that exposure plus cognitive interventions offer no advantage over exposure-only treatments for generalized anxiety disorder (Gould, Otto, Pollack, & Yap, 1997) and obsessive-compulsive disorder (Feske & Chambless, 1995). Meta-analyses likewise suggest no benefit of CT over behavior therapy without a direct focus on cognitive interventions (Depression Guideline Panel, 1993; Glauguen, Cottraux, Cucherat, & Blackburn, 1998).

The lack of consistent support for postulated cognitive mechanisms of CT has led some psychotherapy scholars to question the centrality of direct cognitive change as the mechanism driving the successful outcomes of CT.

For example, Teasdale and colleagues (2001) propose that therapeutic gains are mediated by increases in “metacognitive awareness,” which they define as a “cognitive set in which negative thoughts/feelings are experienced as mental events, rather than as the self” (p. 275). Teasdale et al. demonstrated that both standard CT and mindfulness-based cognitive therapy (MBCT) were effective in preventing relapse in a clinically depressed population by means of increasing levels of metacognitive awareness.

Such findings have set the stage for new theoretical and technological developments within CBT over the past decade, resulting in a loosely related group of novel CBT models. These new models, commonly referred to as *third-generation* behavior therapies (Hayes, 2004), borrow from earlier approaches, including Beck’s CT, but emphasize changing the context in which cognitions are experienced rather than changing cognitive content per se. That is, these approaches emphasize *accepting* rather than *changing* distressing cognitions and affect. In addition to MBCT (Segal, Williams, & Teasdale, 2002; Teasdale, Segal, & Williams, 1995), other examples of these new models include dialectical behavior therapy (DBT; Linehan, 1993), mindfulness-based stress reduction (MBSR; Kabat-Zinn, 1982), and acceptance and commitment therapy (ACT; Hayes, Strosahl, & Wilson, 1999). These approaches share many features with traditional CT, including the grounding in empiricism and the emphasis on an active, collaborative, therapeutic relationship. They also highlight processes that are not generally central to standard CT, such as experiential acceptance, mindfulness, and values clarification (Forman & Herbert, 2007; Hayes, Follette, & Linehan, 2004).

## Acceptance and Commitment Therapy

ACT has emerged as among the most widely practiced and researched of the new CBT treatments. Based in a contextual theory of language and cognition known as relational frame theory (RFT; Barnes-Holmes, Hayes, Barnes-Holmes, & Roche, 2001), ACT makes use of a number of therapeutic strategies, many borrowed from other approaches and subsequently further developed within the ACT model. ACT aims to increase acceptance of the full range of subjective experiences, including distressing thoughts, beliefs, sensations, and feelings, in an effort to promote desired behavior change that will lead to improved quality of life. A key principle is that attempts to control unwanted subjective experiences (e.g., anxiety) are often not only ineffective but even counterproductive, in that they can actually result in a net increase in distress, result in significant psychological costs, or both. Consequently, patients are encouraged to contact their experience

fully and without defense while moving toward valued goals. Similar to the notion of metacognitive awareness in MBCT, ACT encourages patients to “defuse” from distressing psychological experiences and to adopt an accepting stance toward one’s experience as it unfolds in real time. ACT also stresses exercises aimed at identifying and crystallizing key personal values, translating these values into specific behavioral goals, and designing and implementing behavior change strategies to realize those goals. ACT promotes the concept of committed action as movement toward one’s goals in the context of experiential acceptance.

### **Effectiveness of ACT**

ACT has been among the most actively researched of the new CBT approaches. A recent meta-analysis demonstrated growing evidence for the efficacy of ACT (Hayes, Luoma, Bond, Masuda, & Lillis, 2006). Research to date has supported the effectiveness of ACT for the treatment of workplace stress (Bond & Bunce, 2003), psychosis (Bach & Hayes, 2002; Gaudiano & Herbert, 2006), depression (Zettle & Hayes, 1986; Zettle & Rains, 1989), test anxiety (Zettle, 2003), trichotillomania (Woods, Wetterneck, & Flessner, 2006), epilepsy (Lundgren, 2004), obsessive–compulsive disorder (Twohig, Hayes, & Masuda, 2006), and social anxiety disorder (Dalrymple & Herbert, 2007). Additionally, ACT has demonstrated success with behavioral medicine applications including chronic pain (McCracken & Eccleston, 2006), cigarette smoking cessation (Gifford et al., 2004), diabetes (Gregg, 2004), and substance abuse (Hayes, Wilson, et al., 2004). Although offering preliminary support for the effectiveness of ACT, many of these studies lacked an active comparison group, did not compare ACT to gold-standard CT programs and/or were conducted by investigators with an allegiance to ACT. As discussed below, a few studies have provided preliminary investigations of the efficacy of ACT relative to CT.

### **Mechanisms of Change in ACT**

ACT is postulated to influence outcomes by decreasing experiential avoidance (thereby increasing experiential acceptance). Several studies offer preliminary support of this proposed mechanism. Moreover, there is some evidence that ACT appears to operate by means of different mechanisms than CT. Bond and Bunce (2000) demonstrated that the positive effects of an ACT stress reduction intervention were mediated by the acceptance of undesirable thoughts and feelings. In two studies of depression, changes in cognitive defusion mediated treatment effects for ACT, but not for CT

(Zettle & Hayes, 1986; Zettle & Rains, 1989). Similarly, evidence for the mediating role of cognitive defusion was found in a pair of studies of ACT for psychosis (Bach & Hayes, 2002; Gaudio & Herbert, 2006). In each of these studies, ACT was compared with treatment as usual (TAU) and cognitive defusion was operationalized as the extent to which patients reported that they believed their delusions to be true. In both cases, findings pointed to a mediating role of believability in ACT's superiority, relative to TAU, in decreasing rehospitalization.

A comparative trial of ACT versus CT in a mixed outpatient Finnish sample found that ACT resulted in greater treatment-related changes in experiential acceptance than in self-confidence, whereas CT resulted in the opposite pattern (Lappalainen et al., in press). At posttreatment, acceptance was correlated with symptom levels in the ACT condition, even after controlling for self-confidence, but self-confidence was no longer correlated with symptoms in either condition after controlling for acceptance. Although these results provided rather weak tests of causal mediation, they are nevertheless broadly consistent with an ACT model of change. Trials of ACT for test anxiety (Zettle, 2003), trichotillomania (Woods, Wetterneck, & Flessner, in press), worksite stress (Bond & Bunce, 2000), chronic pain (McCracken, Vowles, & Eccleston, 2005), and nicotine addiction (Gifford et al., 2004) have all concluded that decreases in experiential avoidance partially mediated the observed treatment effects of ACT. In addition to clinical trials, a growing number of analogue laboratory studies lend support to the mediational role of experiential acceptance in coping with pain (e.g., Hayes et al., 1999), panic attacks (e.g., Levitt, Brown, Orsillo, & Barlow, 2004), and anxiety-related distress (e.g., Kashdan, Barrios, Forsyth, & Steger, 2006). Finally, another core ACT process is values clarification, which has received very little research attention to date. One recent study found beneficial effects of an experimental intervention emphasizing reflections on personal values (Creswell et al., in press). Relative to control participants, those who were instructed to reflect on personal values had reduced cortisol responses to laboratory stress tasks. Although suggestive, the potential role of values clarification in the context of psychotherapy awaits further research. Thus, initial tests of the mechanisms postulated to underlie ACT have thus far been largely supported, although a great deal more research is needed.

## **Studies Comparing CT and ACT**

As noted earlier, few studies have directly compared ACT with CT. Zettle and colleagues (1986, 1989) compared an early version of ACT with

two variants of CT, both in group formats, in two samples of depressed women ( $n_s = 18$  and  $31$ ). Results suggested that ACT was at least as effective as either form of CT. However, the samples were small, the ACT intervention differed in many ways from the modern version of ACT, and neither the ACT nor the CT protocols utilized were as behaviorally oriented as are current standards. Block (2002) compared ACT with a CT group treatment for fear of public speaking in college students. Results indicated a significantly greater decrease in avoidance of public speaking in the ACT condition relative to the CT condition and to a wait-list control (Block & Wulfert, 2000). However, this was a small, analogue sample. Finally, Lappalainen et al. (in press) found superior outcomes for ACT relative to CT in a mixed sample of outpatients. However, both the ACT and CT programs were modified by restricting the allowable intervention techniques to a limited list. In addition, the effect sizes produced by CT in this study were lower than those found in most previous studies.

Conclusions from the existing comparison trials are tempered not only by the issues noted earlier but also by the fact that the experimenters may have had an allegiance to ACT. In addition, the therapists in several of these studies were highly trained clinicians, which may limit the generalizability of the findings to real-world clinical settings. Finally, to highlight differences between the conditions, some outcome studies utilized forms of ACT or CT that intentionally omitted techniques that would normally be used within each approach (e.g., Lappalainen et al., in press; Twohig et al., 2006), thereby further limiting the external validity of the findings.

## Present Study

In the present study, we compared the relative effectiveness of CT and ACT in the treatment of a heterogeneous sample of patients presenting with combinations of anxiety and mood disorders in an outpatient clinic. We sought to evaluate these treatments in a naturalistic, community-based context with a relatively diverse population so that results would be more widely generalizable to frontline practice settings. Additionally, we carefully controlled for and evaluated potential allegiance effects, and we used relatively naïve student therapists who had minimal or no prior experience with either CT or ACT, rather than using highly trained therapists with specific expertise as is more typical in controlled trials (Wilson, 1995). Although this was primarily an effectiveness study, a number of the study procedures were consistent with standard efficacy trials (e.g., randomization, allegiance monitoring, treatment adherence monitoring, and the requirement for study therapists to

conduct treatment in both conditions). Moreover, the study design allowed for a preliminary evaluation of mediating mechanisms of the treatments.

Given the extensive empirical support for the efficacy of CT, as well as the more limited but nevertheless encouraging data supporting the efficacy of ACT, we did not predict differences in overall effectiveness of the two approaches. We did, however, hypothesize differences in mechanisms of action. Given the emphasis in CT on self-monitoring cognitions, emotions, and sensations (e.g., using the Automatic Thought Record), we predicted stronger mediation effects in CT for the ability to identify and report on internal experiences. In contrast, consistent with ACT's focus on decreasing experiential avoidance, we hypothesized that increases in experiential acceptance and current-moment awareness would be stronger mediators for ACT than for CT.

## Method

### Participants

Participants presented for treatment at a university student counseling center (SCC) that serves a diverse group of nontraditional students pursuing health-related degrees and certifications. Exclusion criteria included the following: (a) The client requested couples or family therapy and not individual therapy; (b) the client's needs were strictly limited to study skills training; (c) a diagnosis of a serious psychiatric illness, including schizophrenia and schizoaffective disorder; or (d) the client presented in crisis and requested a brief crisis consultation. To ensure that participants had at least some degree of clinically distressing symptoms, we included them if their baseline score on the Anxiety Inventory (BAI; Beck, Epstein, Brown, & Steer, 1988) and/or if their score on the Beck Depression Inventory-II (BDI-II; Beck, Steer, Ball, & Ranieri, 1996; Beck, Steer, & Brown, 1996) was greater than 9. Inclusion criteria were purposefully broad, for maximum external validity.

Of the 223 patients that met baseline inclusion criteria and completed an intake assessment, 109 agreed to participate in the study. Eight individuals from this group dropped out before randomization and therefore were not included in further analyses. Women constituted the larger portion of the remaining sample of 101 (80.2%). The participants' mean age was 27.87 years ( $SD = 7.25$ ; range = 18–52), 44.6% of the sample was single (34.7% living with partner or spouse), 4.95% had international status, and 64.4% were Caucasian (12.9% Black, 10.9% Asian, and 3.0% Latino). A variety

of psychopathologies was observed, with 33.7% of the sample presenting with a depressive disorder, 31.9% with an anxiety disorder, and 11.0% with an adjustment disorder.

## Procedure

Study participants received treatment free of charge but did not receive monetary remuneration for participating. After agreeing to participate in the study, consenting clients were randomly assigned to either the CT or the ACT treatment condition. Condition assignment was achieved through stratified block randomization by symptom level, as determined by the total score on the Outcome Questionnaire (OQ; Lambert et al., 1996; cutoff score = 75). There was no limit on the number of treatment sessions that study participants could attend.

At baseline, therapists conducted semistructured interviews using an instrument based on the *Diagnostic and Statistical Manual of Mental Disorders–IV–Text Revision (DSM-IV-TR)*; American Psychiatric Association [APA], 2000). Also, at baseline and at termination, participants completed a questionnaire packet containing self-report measures of outcome and process variables (described later). Additionally, therapists reported on their impressions of participants' global functioning on this same schedule.

## Therapists

All therapists ( $n = 23$ ) were doctoral psychology students in a CBT-oriented clinical psychology program who received training in both ACT and CT. All had been exposed to cognitive-behavioral approaches (<1 year to 4 years) through coursework, although they were generally novice-level therapists and had almost no training in ACT and little training in CT. However, all students had received some training in nonspecific therapy skills as part of their course requirements. Before the treatment phase of the study, all therapists enrolled in a training regimen that consisted of four weekly 3-hr CT training sessions and six weekly 3-hr ACT training sessions. Both focused on advanced cognitive-behavioral approaches, with attention given to the treatments' overlapping qualities, as well as the distinguishing characteristics of each. These trainings involved a combination of didactic lectures, modeling, role-plays, reading assignments, and homework exercises. Training and supervision were conducted jointly by Evan M. Forman and James D. Herbert, both of whom have extensive training in and several years experience with both CT and ACT. Ongoing supervision was

provided in 1-hr weekly large-group meetings, as well as weekly individual sessions with each study therapist.

To counter therapist effect confounds, all therapists conducted both ACT and CT therapies. Therapists treated, on average, 4.39 study patients ( $SD = 1.66$ ).

## **Treatment Conditions**

Keeping with the effectiveness emphasis of the project, we did not use treatment manuals but instead trained therapists in core aspects of both therapy models while stressing the need to prevent cross-contamination. Nonspecific characteristics such as active listening, empathy, providing focus and structure, goal setting, and providing feedback were determined to be relevant to both conditions. Classic behavioral interventions were considered applicable to treatment in either condition, including behavior activation, exposure, homework, and skills training. For example, exposure to feared social situations was utilized in the treatment of clients with social anxiety disorder, regardless of condition. Components designated as unique to CT were socialization to the CT model; discussion of automatic thoughts, core beliefs, and schemas; identification of cognitive distortions; cognitive disputation; and cognitive restructuring. Unique ACT components were socialization to the ACT model, emphasis on experiential acceptance and willingness, discussion of the potential role of language in human suffering, mindfulness training, encouragement of value-driven living, and discussion of “clean” versus “dirty” distress.

## **Treatment Fidelity and Competence**

The Drexel University CT/ACT Therapist Adherence and Competence Rating Scale (McGrath et al., 2005) was adapted from the Adherence Raters' Manual for the NIDA ACT/Bupropion Smoking Cessation Treatment Study (Gifford, Pierson, Smith, Bunting, & Hayes, 2003) and the Cognitive Therapy Adherence and Competence Scale (CTACS; Liese, Barber, & Beck, 1995). It assesses therapist practices specific to ACT and CT, along with items focusing on more general therapist behaviors, within a single scale. The presence or absence of 33 therapist behaviors are rated at 5-min intervals. The scale comprises six distinct subscales: Relationship-Building, Treatment Implementation, ACT-Specific Behavior, CT-Specific Behavior, Miscellaneous Therapist Behaviors, and Therapist Competence. Interreliability (intraclass correlation coefficient = .95) and internal consistency ( $\alpha = .92$ ) are excellent (McGrath et al., 2005).

We used the adherence scale to rate audio recordings of two to three randomly chosen sessions of each study participant. Independent raters were able to successfully differentiate the treatment conditions for 82.2% of the sessions coded. Therapists spent an average of 37.5% of the session on treatment-specific components, and only 1.9% of the session on components specific to the nonassigned condition. On a 5-point scale, competence was judged to be “*very good* (4)” or “*excellent* (5),” for 92% of rated sessions.

### **Therapist Allegiance**

Before their participation in the study, therapists rated their allegiance by answering the question, “Which treatment do you think leads to better outcomes?” Approximately half of the therapists chose each treatment (ACT = 46.4%, CT = 53.6%),  $\chi^2(1) = 0.14, p = .71$ .

### **Participant Expectancies**

We accounted for participant expectancy effects using the Reaction to Treatment Questionnaire (RTQ; Borcovec & Nau, 1972). There was no significant difference in patients’ confidence that the treatment would meet their goals,  $t(70) = -.121, p = .904$ , or in the degree to which the treatment made sense to them,  $t(69) = .810, p = .421$ .

### **Outcome Measures**

*BDI-II* (Beck et al., 1996). The BDI-II is an extensively used and studied inventory designed to assess current severity of depression developed from clinical observations of depressed and nondepressed psychiatric patients. Attitudes and symptoms consistent with depression are represented in a 21-item questionnaire, and patients are asked to rate the severity of each on an ordinal scale ranging from 0 to 3. The BDI-II is scored by summing the ratings, and cut scores may be used to classify patients according to depression severity. The BDI-II is based largely on the first edition of the BDI (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961), which has indicated good reliability and strong validity in clinical and nonclinical samples (see Beck, Steer, & Garbin, 1988, for a review).

*BAI* (Beck et al., 1988). The BAI is the most widely used instrument for assessing anxious symptoms. It is a self-report measure that reliably differentiates anxious from nonanxious groups in a variety of clinical populations and discriminates anxiety from depression. The scale consists of 21 items,

including physiological and cognitive components, each describing a common symptom of anxiety (subjective, somatic, or panic related). Participants are asked to rate how much they have been bothered by each symptom over the past week on a 4-point scale ranging from 0 to 3. The items are summed to obtain a total score that ranges from 0 to 63. The BAI has shown high internal consistency ( $\alpha = .92$ ) and has indicated good reliability and strong validity in clinical and nonclinical populations (Beck et al., 1988).

*OQ (Lambert et al., 1996).* The OQ was developed to be used as a brief measure of patient functioning, designed to be sensitive to patient change over time, and designed to be utilized with a wide range of mental disorders. It can function as a session-by-session measure as well as an outcome measure. The OQ is a 45-item questionnaire that assesses subjective distress (25 items), interpersonal relationships (11 items), and social role performance (9 items). The measure provides a total score (sum of all items) ranging from 0 to 180 and three individual domain scores. The OQ has adequate internal consistency ( $\alpha = .93$ ) and appropriate content and concurrent validity (Lambert et al., 1996).

*Global Assessment of Functioning Scale (GAF; APA, 2000).* The GAF score is outlined in the *DSM-IV-TR* as the Axis V assessment of overall functioning. This score is utilized by the clinician to report his or her assessment of the client's overall level of functioning. This information is used to plan treatment as well as to measure its effect. The GAF ranges from 1 (*persistent danger of hurting oneself or others*) to 100 (*superior functioning*), with levels of functioning divided into 10-point ranges.

*Clinical Global Impression Scale (CGI; Guy, 1976).* The CGI is based on direct observation of the client and evaluates the severity of illness. It is widely used and ranges from 1 (*normal*) to 7 (*extreme illness*). A client is rated a minimum of 4 if he or she meets full criteria for at least one *DSM-IV-TR* disorder.

*Quality of Life Index (QOLI; Frisch, Cornell, Villanueva, & Retzlaff, 1992).* The QOLI is a measure of life satisfaction rooted in the view that overall life quality is the sum of satisfaction in a variety of life domains. Clients are asked to rate the importance of a variety of life domains on a scale ranging from 0 (*not important*) to 2 (*extremely important*). Then they are asked to rate their satisfaction with these life domains on a Likert-type scale ranging from -3 (*very dissatisfied*) to 3 (*very satisfied*). Test-retest coefficients for the QOLI ranged from .80 to .91, and internal consistency coefficients ranged from .77 to .89 across three clinical and three nonclinical samples (Frisch et al., 1992).

*Satisfaction With Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985).* The SWLS is a five-item scale designed to measure subjective satisfaction with life regardless of emotional states. Items (e.g., “In most ways my life is close to the ideal”) are rated from 1 (*absolutely untrue*) to 7 (*absolutely true*). Thus, scores could range from 5 to 35, with higher scores indicating great satisfaction with life. The scale has high internal and test–retest reliability and is consistently related to other indices of well-being (Pavot & Diener, 1993).

## **Mediational Measures**

*Kentucky Inventory of Mindfulness Skills (KIMS; Baer, Smith & Allen, 2004).* The KIMS is a 39-item measure of four components of mindfulness: observing, describing, acting with awareness, and accepting without judgment (Baer et al., 2004). Items are rated on a 5-point Likert-type scale ranging from 1 (*never or very rarely true*) to 5 (*almost always or always true*). The measure was found to have high internal consistency, adequate to good test–retest reliability, and validation analyses providing support for the relationship between mindfulness and mental health (Baer et al., 2004)

*Acceptance and Action Questionnaire (AAQ; Hayes, Strosahl, et al., 2004).* The AAQ is a nine-item measure of the extent to which an individual demonstrates an accepting attitude toward negative feelings and experiences and the ability to take action even when feeling dysphoric or uncertain. Items are rated on a 7-point Likert-type scale ranging from 1 (*never true*) to 7 (*always true*), with higher scores indicating greater levels of experiential avoidance. The AAQ has demonstrated very good internal consistency, and has adequate criterion-related, predictive, and convergent validities (Hayes, Strosahl, et al., 2004).

## **Results**

### **Participant Enrollment**

Two hundred seventy-four participants completed an intake assessment; of these, 223 were eligible for the study and were invited to participate. One hundred seventeen participants initially consented to participation, and 101 were enrolled in the study; (8 were not able to be assigned because no study therapist was available, and 8 dropped out before treatment began). Of those who began treatment, 57 completed a posttreatment questionnaire.

**Table 1**  
**Baseline Characteristics of Sample**

Variable	CT		ACT	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
Symptoms				
BDI	18.92	8.22	18.96	10.05
BAI	13.08	9.95	13.22	10.19
OQ	81.38	15.23	79.49	15.18
Clinician rated				
GAF	64.22	8.35	64.96	11.04
CGI	3.31	1.28	3.23	1.39
Well-being				
QOLI	0.49	2.15	0.73	2.08
SLS	11.21	5.57	12.75	7.89

Note: CT = cognitive therapy; ACT = acceptance and commitment therapy; BDI = Beck Depression Inventory; BAI = Beck Anxiety Inventory; OQ = Outcome Questionnaire; GAF = Global Assessment of Functioning; CGI = Clinical Global Impression; QOLI = Quality of Life Inventory; SLS = Subject Life Satisfaction Scale.

## Baseline Characteristics

Groups were generally equivalent on baseline symptom and well-being levels (see Table 1). Notable gender differences were obtained between groups (ACT: 42 women, 13 men; CT: 37 women, 7 men). As a result, analyses were performed both with and without gender as a covariate; because results were virtually identical, only the latter analyses are reported.

## Attrition

Within the CT group, 42.2% of patients did not complete treatment, whereas attrition was 33.9% within the ACT condition, a nonsignificant difference,  $\chi^2(1) = 0.72, p = .39$ .

## Treatment Length

As described earlier, patients (sometimes in consultation with therapists) were free to decide when to terminate treatment. Among those who remained in the study, the means were 15.27 and 15.60 sessions for the CT and ACT groups, respectively,  $t(61) = .12, p = .90$ .

## Outcome Analyses

We performed outcome analyses using repeated measures multivariate analyses of variance (MANOVAs) for all participants who entered the study. Variables were clustered into three factors: self-reported symptom levels (BDI, BAI, & OQ), clinician-reported global functioning (GAF & CGI), and self-reported well-being (SWB & QOLI). Intention-to-treat (ITT) analyses were conducted using the last-observation-carried-forward method on the conservative assumption that individuals who discontinued treatment prematurely experienced no change. Analyses were repeated for treatment completers, and a similar pattern of results was obtained; therefore, only the ITT analyses are reported.

Main effects for time were significant, indicating significant pre- to post-treatment decreases in self-reported symptom levels,  $F(3, 97) = 15.90, p < .01$  (partial  $\eta^2 = .33$ ); clinician-assessed functioning,  $F(2, 98) = 24.79, p < .01$  (partial  $\eta^2 = .34$ ); and well-being,  $F(2, 98) = 9.92, p < .01$  (partial  $\eta^2 = .17$ ). As reported in Table 2, symptom scores significantly decreased, and global functioning and well-being scores significantly increased from pre- to posttreatment. Neither the main effects for group nor the effects for the Group  $\times$  Time interaction were significant (all  $ps > .05$ ).

*Effect size.* The size of time effects (i.e. the degree of improvement) can be examined through the partial  $\eta^2$  within the general linear model. The partial  $\eta^2$  values for symptom level change (.31, .18, and .17, for the BDI, BAI, and OQ, respectively) are considered large by convention. Cohen's  $d$  pre-post effect sizes were also computed for BDI (0.66), BAI (0.33), and OQ (0.47). To facilitate comparisons to previous effectiveness studies, we computed Cohen's  $d$  again but without carrying baseline observations forward for missing data (i.e., only using completer data). Results (BDI = 1.27, BAI = 0.68, OQ = 0.75) revealed very large effect sizes, which were comparable with other CBT effectiveness studies using mixed samples (e.g., Persons, Roberts, Zalecki, & Brechwald, 2006 [ $d$  for BDI = 1.33]; Westbrook & Kirk, 2005 [for BDI,  $d = 1.15$ ; for BAI,  $d = 0.97$ ]).

*Clinical significance.* Clinical significance was computed on the basis of Jacobsen and Traux's (1991) model, which requires both a reliable change index (a minimum decrease from pre to post) and the crossing of a cutoff point that approximates a shift from clinical to nonclinical status. It is only customary to report clinical significance for those who completed the study. Results showed that a substantial proportion of participants receiving treatment reliably "recovered" (i.e., moved from the clinical to

**Table 2**  
**Effect of Time and Treatment Group on Outcome**

	Pretreatment				Posttreatment				Main effect (Time)			Interaction effect (Time × Treatment Group)			
	CT		ACT		CT		ACT		<i>F</i> (1, 99)	<i>p</i>	Partial $\eta^2$	<i>F</i> (1, 99)	<i>p</i>	Partial $\eta^2$	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>							
Symptom															
BDI	18.76	8.19	19.23	10.15	12.75	9.99	12.84	9.33	45.18	<.001	.31	0.04	.837	.00	.00
BAI	12.94	9.88	13.42	10.20	9.59	9.43	10.32	9.57	21.09	<.001	.18	0.03	.860	.00	.00
OQ	81.33	15.06	80.25	16.08	74.37	15.88	72.47	15.92	20.77	<.001	.17	0.06	.802	.00	.00
Clinician rated															
GAF	64.61	8.53	64.92	10.37	69.79	10.09	70.60	9.58	49.31	<.001	.33	0.10	.750	.33	.00
CGI	3.19	1.32	3.26	1.33	2.75	1.28	2.79	1.27	14.16	<.001	.13	0.01	.930	.00	.00
Well-being															
OOLI	0.54	2.08	0.65	2.09	1.20	2.41	1.02	1.92	9.99	.002	.09	0.826	.37	.01	.01
SLS	11.18	5.51	12.61	7.88	13.69	7.22	14.07	7.60	19.78	<.001	.17	1.37	.24	.01	.01

Note: CT = cognitive therapy; ACT = acceptance and commitment therapy; BDI = Beck Depression Inventory; BAI = Beck Anxiety Inventory; OQ = Outcome Questionnaire; GAF = Global Assessment of Functioning; CGI = Clinical Global Impression; QOLI = Quality of Life Inventory; SLS = Subject Life Satisfaction Scale.

the nonclinical range) for symptoms of depression (61.2%), anxiety (55%), and functioning difficulties (38.3%).

## Mediational Analyses

Formal mediational analyses could not be conducted because of the lack of a no-treatment group and because mediator variables were assessed contemporaneously with outcome variables. However, exploratory analyses of mediation can be conducted by (a) determining whether treatments produce change in the proposed mediators and then (b) examining whether associations between residualized change scores of mediators and outcome variables differ in strength by treatment group (Hofmann, 2004). Change in mediators as a result of treatment was determined through a repeated measures MANOVA (AAQ, KIMS subscales). Associations between changes scores were determined by first creating residualized values based on a regression of pretreatment scores on posttreatment scores. Pearson correlations between residualized change scores of mediator and outcome variables were then compared across conditions using Fisher's *z*-score transformations.

The MANOVA indicated that treatment produced significant improvement in mediational variables,  $F(5, 95) = 3.85, p < .01$ ; partial  $\eta^2 = .17$ . Specifically, statistically significant improvements were observed on the AAQ, and three of the four KIMS subscales (Table 3). Moreover, changes in mediators were robustly associated with changes in outcomes (see Table 4). Where the strength of these associations varied as a function of treatment group, the results were in line with hypotheses (i.e., that changes in observing would be more strongly associated with outcome variables in the CT condition than in the ACT condition, whereas experiential avoidance, acting with awareness, and acceptance would be most strongly associated with outcome variables for those receiving ACT; no clear result emerged for *describing*). The pattern of mediational results is most clear in the case of functioning difficulties (OQ). Although no difference was detected for *describing*, the association between residualized change in observing and OQ was more strongly related (and in the expected direction) in those receiving CT versus those receiving ACT. Conversely, experiential avoidance, acting with awareness and acceptance were all more strongly associated with the OQ for those receiving ACT (see Table 4). Similar, but not as consistent, patterns were observed for BDI, BAI, and QOLI (see Table 4).

**Table 3**  
**Effect of Time and Treatment Group on Mediator Variables**

Variable	Pretreatment				Posttreatment				Main effect (Time)			Interaction effect (Time × Treatment Group)		
	CT		ACT		CT		ACT		F(1, 99)	p	Partial η <sup>2</sup>	F(1, 99)	p	Partial η <sup>2</sup>
	M	SD	M	SD	M	SD	M	SD						
AAQ	55.67	7.19	52.64	6.54	52.91	9.21	49.68	7.49	14.91	<.001	.13	0.02	.890	.00
KIMS-Ob	22.78	8.02	23.07	7.32	23.18	8.74	23.20	8.39	0.26	.609	.00	0.07	.791	.00
KIMS-De	17.80	7.36	18.02	5.99	19.02	6.99	19.14	6.22	6.67	.011	.06	0.01	.917	.00
KIMS-Aw	16.40	6.93	16.41	5.56	17.85	6.66	17.61	4.99	8.16	.005	.08	0.07	.786	.00
KIMS-Ac	18.18	7.50	17.29	7.35	19.91	7.53	19.32	6.85	9.06	.003	.08	0.06	.814	.00

Note: CT = cognitive therapy; ACT = acceptance and commitment therapy; AAQ = Acceptance and Action Questionnaire; KIMS = Kentucky Inventory of Mindfulness Scale, Ob = observing; De = describing; Aw = acting with awareness; Ac = acceptance.

**Table 4**  
**Correlations Between Residualized Change Scores of Outcome Variables and Residualized Change Scores of Mediator Variables, by Treatment Group, as Well as Fisher's z-Score Transformation Comparisons of the Strength of These Correlations Across Treatment Groups**

Condition	Measure	KIMS-Ob	KIMS-De	AAQ	KIMS-Aw	KIMS-Ac
CT	BDI	-.27	-.53**	.14	-.38*	-.47**
	BAI	-.23	-.50**	.34*	-.28	-.46**
	OQ	-.26	-.43**	.25	-.23	-.51**
ACT	QOLI	.14	.02	-.26	.08	.35*
	BDI	.03	-.59**	.42**	-.57**	-.52**
	BAI	-.04	-.20	.42**	-.35**	-.36**
Comparison of strength of correlations	OQ	.17	-.59**	.49**	-.65**	-.70**
	QOLI	-.08	.66**	-.36**	.64**	.50**
	BDI	CT > ACT†		ACT > CT†		
Comparison of correlations	BAI	CT > ACT†	CT > ACT*	ACT > CT†	ACT > CT†	ACT > CT†
	OQ	CT > ACT*				
	QOLI		ACT > CT**		ACT > CT†	

Note: Significant correlations are in bold type. The symbols < and > refer to lesser or greater association in the expected direction. KIMS = Kentucky Inventory of Mindfulness Scale; Ob = observing; De = describing; Aw = acting with awareness; Ac = acceptance; AAQ = Acceptance and Action Questionnaire; CT = cognitive therapy; BDI = Beck Depression Inventory; BAI = Beck Anxiety Inventory; OQ = Outcome Questionnaire; QOLI = Quality of Life Inventory; ACT = acceptance and commitment therapy.

† $p < .10$ . \* $p < .05$ . \*\* $p < .01$ .

## Discussion

The primary purpose of the present study was to compare the relative effectiveness of a well-established treatment model (CT) with a novel version of CBT (ACT) in a sample of outpatients presenting with a mixture of anxiety and mood disturbances. We evaluated these treatment models in a naturalistic setting with a relatively heterogeneous population and with novice therapists to extend the existing effectiveness literature in ways that would increase generalizability to actual clinical practice (Wilson, 1995). In our sample of 101 individuals, we found no incremental differences by treatment for any of the outcomes that were assessed, including self-reported symptom measures (BDI-II, BAI, OQ), clinician-assessed functioning (GAF, CGI) and well-being (QOLI, SWLS), demonstrating that the rate and degree of patient improvement over time appeared equal across the two treatment approaches. In both conditions, effect sizes were large and most patients demonstrated clinically significant improvements as a function of treatment.

Given the existing empirical support for both CT and ACT, we did not hypothesize the superiority of one approach over the other. We did, however, control for and monitor factors that potentially could contribute to differential outcomes. Specifically, potential allegiance effects of our therapists were assessed, with no differences found for therapist or client expectations of efficacy for the two treatment approaches. In addition, therapist adherence to the assigned treatment was very good, and contamination was low. Essentially, our findings indicate that ACT appears to be as effective as the gold-standard CBT treatment (CT) in a naturalistic outpatient setting using nonexpert therapists without a strong allegiance to either approach.

Although similarly effective and possessing a shared lineage, given the contrasting philosophies and theories underpinning CT and ACT, investigation of mediational mechanisms is essential for understanding how each approach might exert specific effects and contribute to successful outcomes. A second purpose of the present study was therefore to examine hypothesized differences in mechanisms of action for the two treatment approaches. Overall, we found that changes in the examined mediators were strongly associated with improved therapeutic outcomes for both treatment approaches; however, the strength of these associations varied by type of treatment. Although CT focuses on directly modifying the content of dysfunctional thoughts through a rational and deliberate process, ACT focuses on modifying an individual's relationship with his or her thinking through less obvious and more experiential processes. As such, consistent

with hypotheses, changes in “observing” and “describing” one’s experiences were more strongly associated with outcomes for those in the CT group relative to those in the ACT group, whereas experiential avoidance, acting with awareness, and acceptance were more strongly associated with outcomes for those in the ACT group. These findings were most evident when examining functioning difficulties (assessed with the OQ), with similar, albeit less consistent patterns for symptom measures (i.e., BDI, BAI, and QOLI). Overall, these findings support the notion that CT and ACT are functionally distinct from one another.

## **Strengths**

The present study has a number of notable strengths. First, the naturalistic design incorporates typical elements of an effectiveness study that extend the generalizability beyond previously conducted studies in this area. Given the minimal exclusion criteria, the majority of patients seeking treatment at the outpatient clinic through which this study was conducted were invited to participate. As is typical in such frontline settings, this allowed for a highly diverse sample. The treatments as delivered were more realistic and consistent with actual clinical practice relative to those utilized in many clinical trials. Common behavioral elements, such as in vivo exposure and the assignment of homework, were allowable in both treatment conditions. Treatments were nonmanualized, allowing therapists to individualize the delivery of each treatment-specific intervention for each patient and to incorporate nonspecific treatment components as they deemed appropriate. Although our primary goals were to compare the relative effectiveness of two treatment approaches on a number of outcomes and conduct an initial evaluation of mediating mechanisms, we incorporated many procedures consistent with standard efficacy studies that permit greater confidence in our findings. Specifically, participants were randomly assigned to study condition, all therapists treated cases from both the CT and ACT conditions, and therapist allegiance and adherence were assessed and monitored. Finally, our study supports the exportability and/or disseminability of these treatments to therapists-in-training. Although using highly trained therapists with specific expertise is more typical in controlled trials (Wilson, 1995), our adherence data show that relatively novice-level therapists with minimal or no previous experience with either CT or ACT can be trained to adhere to the therapeutic model and conduct each therapy with integrity, even in the absence of specific treatment manuals.

## Limitations

As is typical with effectiveness studies, a limitation of the present study was that certain design and procedural controls were not implemented. For example, no waitlist comparison group was included, thereby precluding definitive attribution of the observed changes to the interventions. However, the magnitude of changes, as well as the fact that changes in outcome measures were associated with specific mediational mechanisms for each treatment approach, support the conclusion that the observed effects were indeed treatment-related. An important weakness of the study is that mediators and outcome measures were assessed contemporaneously therefore limiting causal attribution. Another limitation is that the study included a relatively modest sample size. Moreover, the rate of attrition was relatively high (i.e., 42.2% of the CT group and 33.9% of the ACT group did not complete treatment). Even so, this rate of attrition was not outside of norms reported by others. For instance, Garfield (1994) highlights that 25-50% of patients (across many studies) fail to return after their initial session. Hansen, Lambert, and Forman (2002) reported that only 50% of 1,188 patients seeking services at a (traditional) student counseling center attended more than four sessions, and only 50% of 595 patients from a local HMO (who may have more similar characteristics to the nontraditional student population served in the present study) attended more than two sessions.

Given the naturalistic delivery of treatment, it is important to note that there was some overlap of therapeutic techniques across the two approaches. Even given this allowance, adherence data indicate that each treatment approach was reliable and distinct. The design of this investigation did not allow for adequate follow-up of study participants; it is therefore unknown whether the treatment effects will be similarly maintained in the long term or whether the mechanisms of action that influence outcome contribute differentially to the long-term maintenance of change/symptom improvement.

## Future Directions

Additional research using designs that permit a formal evaluation of causal mediational mechanisms is especially needed. In addition to further examination of the different methods by which CT and ACT address distressing cognitions, affect, symptoms, and quality of life, investigation of other potential mediators (e.g., values clarification in the case of ACT) are needed. As Lappalainen et al. (in press) have suggested, more direct investigation of the extent of training and supervision required to train effective therapists in CT and ACT is also warranted.

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