Acceptance and Commitment Therapy and Cognitive Behavioral Therapy for Anxiety Disorders: Different Treatments, Similar Mechanisms?

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Cognitive behavioral therapy (CBT) and acceptance and commitment therapy (ACT) researchers and scholars carry assumptions about the characteristics of these therapies, and the extent to which they differ from one another. This article examines proposed differences between CBT and ACT for anxiety disorders, including aspects of treatment components, processes, and outcomes. The general conclusion is that the treatments are more similar than distinct. Potential treatment mediators and issues related to the identification of mediators are considered in depth, and directions for future research are explored.

Key words: **acceptance and commitment therapy, anxiety disorders, cognitive behavioral therapy, mediation, treatment mechanisms.** ***[Clin Psychol Sci Prac 15: 263–279, 2008]***

The development of behavioral and cognitive behavioral therapies for anxiety disorders (Barlow & Cerny, 1988; Beck, Emery, & Greenberg, 1985; Clark & Beck, 1988) introduced time-limited, relatively effective treatments for these disorders. As a result of clinical efficacy and ease of implementation, cognitive behavioral therapy (CBT) arguably became the most dominant empirically supported treatment for anxiety disorders. However, in an attempt to broaden, improve upon, and provide alternative behaviorally based treatments to CBT, researchers and practitioners over the past decade have shown increasing interest in mindfulness and acceptance-based treatments for psychopathology, including anxiety disorders. One creative approach that has gained attention in the research and therapy community and in the treatment of anxiety disorders is acceptance and commitment therapy (ACT; Eifert & Forsyth, 2005; Hayes, Strosahl, & Wilson, 1999; Orsillo, Roemer, Block-Lerner, LeJeune, & Herbert, 2005; Twohig, Hayes, & Masuda, 2006).

In the excitement and curiosity that comes with new, thoughtful treatment approaches, attempts to distinguish the novel treatment approach from previous approaches often emerge (e.g., Eifert & Forsyth, 2005). As the social cognition literature suggests (e.g., Tajfel, 1982), group comparisons tend toward amplification and dichotomization of differences between one's own group and an outside group. Comparisons of ACT and CBT sometimes reflect this tendency. Emphasizing differences may limit our capacity to investigate the common mechanisms that underlie effective therapies. To identify the most potent elements of behavioral therapies, and move the field forward, it is necessary to look beyond dichotomization. Identifying similarities helps to distinguish where true differences are likely to be found, facilitating the potential to uncover unique contributions of each therapy.

Noting the relative absence of research that directly addresses these issues, we offer reflections on potential similarities and differences between ACT and CBT for anxiety disorders. In particular, we consider the ways in

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which differences between the two treatments are dichotomized, whereas upon close examination the treatments share significant commonalities. Our goal is to raise questions for consideration that have been overlooked or underplayed in the current discussion on ACT and CBT for anxiety disorders. We also aim to guide future research by broadening the scope of the questions and methods used to investigate and compare these therapies.

Our focus on treatment for anxiety disorders is not accidental. Anxiety disorders have enjoyed relative success from CBT approaches to treatment, and have inspired extensive basic and applied research. For example, etiological models based on modern learning theory (e.g., Bouton, Mineka, & Barlow, 2001) have been applied extensively to anxiety disorders. Furthermore, anxiety disorders were among the first disorders for which cognitive behavioral therapies were developed (Barlow, 1988; Beck et al., 1985; Chambless, Goldstein, Gallagher, & Bright, 1986; Clark, 1986). Hence, the broad base of treatment research and clinical experience with CBT for anxiety disorders makes a relatively informed launching place from which to examine key differences and similarities with a newer treatment (e.g., ACT).

ACT AND CBT: BASIC TREATMENT ELEMENTS

First we describe the elements of the actual therapies (e.g., what is presented to clients in therapy), very briefly touching on the assumptions and philosophies behind them. Additional examination of underlying assumptions is pursued in subsequent sections.

Cognitive behavioral therapy for anxiety disorders aims to help clients reduce their distress by changing their cognitive and behavioral responses to anxiety (Craske, 1999; Craske & Barlow, 1993). From the perspective of learning theory (Foa & Kozak, 1986), CBT enables clients to develop a new associative network of adaptive thoughts and behaviors that compete with or modify maladaptive, fear-based networks and memories. Toward that aim, CBT for anxiety disorders may include the following components: (a) psychoeducation on the nature of fear/anxiety; (b) self-monitoring of symptoms; (c) relaxation/breathing retraining; (d) cognitive restructuring (logical empiricism and disconfirmation); (e) behavioral experiments; (f) imaginal and in vivo exposure to feared images, bodily sensations, and situations; (g) weaning of safety signals; and (h) response and relapse prevention. In cognitive restructuring, clients learn to challenge the absolute truth of anxious thoughts by noting evidence for and against the thought, identifying cognitive errors the thought reflects, and/or developing alternative thoughts that better reflect the full range of their experience. Behavioral experiments serve to directly challenge anxiety-related predictions by helping clients approach feared stimuli and noting whether the predicted disastrous result(s) occurs. Response prevention exposes clients to feared stimuli and contexts, while preventing anxiety-reducing and avoidant behaviors. More streamlined CBT therapy may include only psychoeducation, cognitive restructuring, and behavioral exposure.

Acceptance and commitment therapy is a behavioral therapy that uses mindfulness, acceptance, and cognitive defusion skills to increase psychological flexibility and promote behavior change in the direction of chosen values. Within ACT, psychological flexibility is defined as enhancing the capacity of clients to make contact with their experience in the present moment, and based on what is possible for them in that moment, choose to act in ways that are consistent with their chosen values (Hayes et al., 1999). From a broader perspective, ACT is grounded in radical behaviorism, and attempts to integrate cognition and language into a behavioral analytic framework. The components of ACT will be explored in somewhat more detail, because it is a newer therapy that may be less familiar to many readers.

Acceptance and commitment therapy describes itself as based on an extensive empirical, theoretical, and philosophical research program that demonstrates how language embroils clients in a fight with themselves and their experience (Hayes et al., 1999). This research program centers on relational frame theory (RFT; Hayes, Barnes-Holmes, & Roche, 2001; Hayes et al., 1999), which is a "post-Skinnerian" contextual behavioral theory about how language influences cognition, emotion, and behavior. From the perspective of RFT, "the core of human language and cognition is the learned and contextually controlled ability to arbitrarily relate events mutually and in combination, and to change the functions of specific events based on their relations to others" (Hayes, Luoma, Bond, Masuda, & Lillis, 2006, p. 5). A full discussion of the reasoning, evidence, and conclusions of RFT is beyond the scope of this article (see Hayes et al., 2001). However, an important RFT implication is

that verbally mediated relationships among objects can alter behavioral processes: a person shocked in the presence of B who learns verbally that B is smaller than C will show a greater emotional response to C than to B, even though only the latter was paired directly with shock (Dougher, Hamilton, Fink, & Harrington, as cited in Hayes et al., 2006). Relatedly, in a simultaneous discrimination task, if B is established via conditioning as a punisher, then learning that A and B are the same and B and C are opposites results in A functioning as a punisher and C as a reinforcer (Whelan & Barnes-Holmes, 2004). Importantly, C functioned as a reinforcer despite the fact that no such function had been established for any member of the learning network. Consequently, stimulus properties of real-world events become fused with the words and symbolic relations used to describe them (Forsyth, Eifert, & Barrios, 2006). RFT argues that language is associated with psychopathology due to its functioning in a context in which valued behavior is narrowed or abandoned in order to cope with cognitive activity. Although it may be argued that ACT does not stem directly from RFT—particularly components such as values and mindfulness—RFT provides a framework for conceptualizing the role of language in psychopathology from a radical behavioral perspective.

From the perspective of ACT, believing that one must control and respond to language (i.e., verbalizations, thoughts, self-talk, catastrophizing) leads to increasingly limited opportunities for valued action. To expand behavior, ACT helps clients alter the context of symbolic activity, or the functional significance of action-limiting language. Therefore, a central ACT component is teaching cognitive defusion skills, which involve distancing oneself from the literal meaning and content of language. Clients are encouraged to use these skills, which are taught via experiential exercises and use of metaphors (i.e., nonlinear language), whenever language thwarts action in available valued life directions.

Similarly to CBT, ACT involves the development of an objective stance toward one's thoughts, feelings, and behaviors. However, it does not subsequently target them for logical disconfirmation, change, and control. Rather, self-observance is framed within the perspective of mindfulness:[1] to live as fully as possible in the present moment, with acceptance toward whatever one is experiencing (Eifert & Forsyth, 2005) be it "good, bad, or ugly" (Kabat-Zinn, 1990). Thus, the goal is not changing cognitions or symptoms, as in CBT, but mindful tolerance and acceptance of cognitions and symptoms. Within ACT, behavior alone is targeted for content change.

Beyond cognitive defusion, additional components of ACT treatment for anxiety disorders (Eifert & Forsyth, 2005) include psychoeducation, creative hopelessness, life values work, value-guided exposure, and behavioral willingness/committed action. Creative hopelessness involves helping the client to recognize that his or her past efforts to change, control, or evade fear and anxiety have not worked, and have led the client to avoid, limit, and/or undermine valued life activities. Values-based exercises, such as writing the epitaph for one's imagined tombstone, help the client to unearth and examine his or her life values. Exposure to feared objects, situations, and contexts takes place not with the goal of fear extinction, but within the context of mindful acceptance of uncomfortable feelings and thoughts—to face what needs to be faced in order to live in accordance with one's chosen values (Eifert & Forsyth, 2005). Similarly, behavioral willingness or committed action involves choosing to behave in ways that are consistent with chosen values, in the face of painful thoughts and feelings that may arise (Hayes et al., 1999).[2]

On the surface, ACT and CBT for anxiety disorders are quite different in both the procedures and goals of therapy. Hence, we begin by offering critical reflections on the major dichotomies that pervade the research and clinical dialogue on ACT and CBT, including cognitive restructuring versus cognitive defusion (and acceptance), prediction and control versus acceptance, and anxiety symptoms versus life goals. In addition, processes of therapeutic change are addressed, including a brief perusal of treatment mediation for ACT and CBT.

TREATMENT OF THOUGHTS: COGNITIVE RESTRUCTURING VERSUS COGNITIVE DEFUSION (AND ACCEPTANCE)

Unlike the initial behavioral therapies, which focused on behavior, ACT and CBT each offer explicit methods for dealing with anxiety- and fear-related thoughts or cognition. In ACT, cognitive defusion and acceptance are the major tools for coping with threat-related thoughts, whereas in CBT, cognitive restructuring is endorsed. Cognitive restructuring aims to deal directly

with surface-level threat appraisals to modify deeper, preconscious belief systems as well as attentional processing biases toward threat, both of which have been proposed to play a central role in the etiology and maintenance of anxiety (Mogg & Bradley, 1998) and emotional vulnerability more generally (MacLeod, Campbell, Rutherford, & Wilson, 2004; MacLeod, Rutherford, Campbell, Ebsworthy, & Holker, 2002). From the perspective of ACT, cognitive restructuring in CBT focuses too greatly on the content of cognition, thereby keeping the ruminative cycle alive (Eifert & Forsyth, 2005; Roemer & Orsillo, 2002). In other words, according to the ACT model, countering anxious thoughts with judging and modifying thought content may intensify the struggle to rid oneself of anxious thinking. ACT-based acceptance and cognitive defusion are proposed as means of sidestepping the ruminative trap of cognition and accessing experience directly. However, the pathways of action for cognitive restructuring and acceptance are not necessarily distinct.

Hayes et al. (1999) have used the research on thought suppression to support and justify the centrality of an acceptance orientation toward internal experience in ACT. Specifically, Wegner and associates have shown that conscious and unconscious thought suppression can be counterproductive, facilitating the return of the very thought(s) one intends to avoid (Abramowitz, Tolin, & Street, 2001; Wegner, 1994; Wegner & Smart, 1997; Wenzlaff & Wegner, 2000). An acceptance stance toward undesirable thoughts aims to reduce the need for thought suppression. By implication, cognitive restructuring may be considered counterproductive to the degree it facilitates suppression. That is, CBT may encourage thought and/or emotion suppression by emphasizing the modification of thought content, and by labeling certain thoughts as "faulty," which may increase the desire to suppress them. In turn, thought challenging in CBT could lead to a diminished sense of (and reality of) control when suppressed thoughts become ever more accessible. On the other hand, research by Gross and colleagues on the related phenomenon of emotional suppression often uses cognitive reframing as an alternative experimental condition, demonstrating its distress-reducing capacities relative to suppression. That is, cognitive reframing, a core CBT cognitive restructuring approach, generally decreases the intensity and behavioral expression of negative emotion and does not produce the same counterproductive effects as suppression (see Gross, 2002).

In addition, cognitive restructuring is an approach-oriented technique for responding to anxiety. In other words, cognitive restructuring, like acceptance, necessitates directly stating and dealing with previously avoided or suppressed cognitive material. The process of monitoring, stating, and challenging threat-related cognitions may function as a form of exposure. Thought challenging that takes the form of behavioral experimentation also serves as exposure, and increases a sense of predictability and control by linking threat-oriented predictions with the lack of threat occurrence. Viewing cognitive restructuring as a form of exposure may help to explain why few differences have been found in direct comparisons of behavioral and cognitive behavioral therapies for a number of anxiety disorders (e.g., Chambless & Peterman, 2004; Foa et al., 2005; Ost, Thulin, & Ramnero, 2004; Williams & Falbo, 1996). Finally, cognitive restructuring challenges the notion of thoughts as facts by proposing that anxiety-related thoughts are hypotheses to be tested against experiential evidence. Hence, cognitive restructuring may suspend rumination by staging a return to behavioral experience. In treating anxiety-related thoughts as hypotheses rather than facts, cognitive restructuring creates distance between the thinker and the thought in ways that are similar to ACT-based cognitive defusion.

On the other hand, the frequent finding that cognitive components do not significantly improve the outcome of behavioral therapy alone (including for anxiety disorders) has led several researchers to conclude that the cognitive component of CBT is not needed (Hayes, 2004; Longmore & Worrell, 2007). Although several studies have found that cognitive-based treatment demonstrates superior outcomes over behavioral treatment alone (e.g., in social phobia with a newer cognitive therapy; Clark et al., 2006), the findings in the opposite direction are broad and stimulating. It could be argued that cognitive restructuring techniques facilitate exposure (Craske, Antony, & Barlow, 2006; Craske & Barlow, 2008) or reduce dropout rates compared with exposure therapy alone. In addition, as Hofmann (2008) notes, the finding that cognitive components do not improve outcomes over exposure therapy alone does not preclude

the possibility that cognitive components mediate outcomes. On the other hand, if cognitive restructuring functions as a (less direct) form of exposure or by returning clients to behavioral experience, then why not focus directly and exclusively on behavioral exposure in the treatment of anxiety disorders? Similarly, if exposure therapy alone changes cognitions (e.g., Hofmann, 2004; Smits et al., 2006, see below), then why is an explicit focus on cognitions needed? The same argument may be put forth for ACT approaches to cognition. Component and mediational analyses of ACT would help address the utility of cognitive defusion and acceptance.

Just as cognitive restructuring may risk thought suppression in some cases, so may the acceptance of thoughts in ACT, which includes "letting go" of thoughts as they arise. Instructing clients to "let go" of thoughts during meditative exercises could be misunderstood and misused as encouragement of thought suppression. The emphasis on letting go of thoughts inherently emphasizes their disappearance, rather than the reality of their ebb and flow, which may inadvertently reinforce thought avoidance and/or suppression. This may be particularly the case for clinically anxious individuals, who have particularly "sticky" threat-based thoughts that demand great effort to let go. Other ACT forms of cognitive defusion such as the classic "milk" repetition exercise (Hayes et al., 1999; Masuda, Hayes, Sackett, & Twohig, 2004), in which the word "milk" is repeated aloud over and over to defuse its meaning, may have less potential for misuse, because it does not emphasize "letting go" or the eventual disappearance of thoughts. Hence, it may be less likely to inadvertently result in avoidance or suppression. Instead, this exercise likely reduces anxiety by facilitating exposure to previously avoided thoughts (e.g., when the word "milk" is replaced with anxiety-related words, such as "suffocate," "incompetent," etc.). To the extent that cognitive defusion facilitates an approach orientation toward anxiety-related thoughts, and encourages the enactment of value-driven behaviors, it may provide a valuable therapeutic approach.

To examine another potential cognition-related difference between CBT and ACT, the notion that cognitive defusion and acceptance return us to direct experience whereas CBT unwisely aims to extinguish fire with fire (by using cognition to relieve us of cognition) may be overstated. Both ACT and CBT methods of coping with anxious cognition requires additional thinking to not get tied up in thinking. This additional thinking takes the form of self-talk or coaching at a bare minimum. Even on a silent meditation retreat, self-talk in the form of verbal coaching is readily present.

It may be argued that some forms of self-talk, coaching, and thinking are better than others. For example, ACT wisely bypasses "fighting" about which side of a thought has greater evidence by viewing such fights from the perspective of a meta-cognitive understanding of what minds do (e.g., that minds often produce anxious and contradictory thoughts and that this is normal). Ruminating about whether the original anxious thought versus newly restructured thought has greater supporting evidence is a risk in cognitive restructuring, particularly if behavioral experiments are not used to link thoughts directly with experience. On the other hand, cognitive defusion in ACT does not specify which thoughts to defuse. One might be instructed to defuse thoughts that get in the way of living a valued life. However, the need to make this distinction risks returning to the notion of some thoughts as "good" and helpful, and others as "bad," unhelpful—and in need of defusion—thereby returning to a focus on cognitions' content and desirability in ways similar to cognitive restructuring.

In summary, both cognitive restructuring and cognitive defusion/acceptance-based approaches to threat-laden thoughts may risk thought suppression, even as both also may facilitate exposure. Cognitive restructuring and cognitive defusion both aim to reduce avoidance and enhance exposure to previously avoided and suppressed internal experiences. Therefore, both may serve to reduce "experiential avoidance," the term used in ACT to describe the avoidance of uncomfortable internal thoughts, sensations, and feelings (Hayes et al., 1999). Direct comparison of these two strategies for coping with anxiety-related thoughts is needed to investigate this claim empirically, and to determine if these strategies produce differences in emotional coping, behavioral approach/avoidance, or physiology. Given the challenges inherent in assessing cognitive and emotional processes via self-report—many such processes are difficult to distinguish from one another (Cahill, 1982) and subject to responder bias—behavioral and physiological measures may be highly useful here. For example, assessing whether cognitive

restructuring or defusion leads to more efficient and durable or differential reductions in behavioral avoidance and physiological reactivity to a feared object, cognition, or situation may be a useful approach. In addition, future studies may wish to compare exposure alone to exposure with cognitive defusion and acceptance. Experimental paradigms that isolate the effects of these two therapy elements are a first step to determining whether cognitive restructuring and cognitive defusion produce similar reductions in cognitive and behavioral avoidance, and whether they do so via the same or different pathways.

APPROACH TO EMOTIONAL SYMPTOMS: PREDICTION AND CONTROL VERSUS ACCEPTANCE

Prediction and control (CBT) versus acceptance (ACT) of anxiety arises as a major potential difference between CBT and ACT therapeutic approaches. CBT has been criticized on the grounds that its goals of symptom prediction and especially symptom control and immediate fear reduction are impossible to achieve and even counterproductive for most clinical problems (Hayes et al., 1999). The alternative approach proposed by ACT is acceptance of symptoms (and control of behavior). Acceptance within ACT is defined as "an active taking in of an event or situation . . . [an] abandonment of dysfunctional [symptom] change agendas and an active process of feeling feelings as feelings, thinking thoughts as thoughts . . . and so on" (Hayes et al., 1999, p. 77). Acceptance as a concept is grounded in Eastern philosophies and traditions, namely, Buddhism. At first glance, the notion of accepting anxiety symptoms represents an opposing approach to the traditional CBT approach of disputation and symptom prediction and control. On closer examination, the reality may be more complex.

There is strong evidence to suggest that prediction and control are central to the regulation of fear and anxiety, and to the etiology and maintenance of anxiety disorders (see Barlow, 2002; Bouton et al., 2001; Craske, 2003). In fact, researchers have suggested links between perceptions of control and anxiety for over half a century (Mowrer & Viek, 1948). Humans are less distressed when given control over aversive external events, and this finding extends to control over anxiety and panic symptoms. For example, control over the termination of aversive carbon dioxide inhalation (which produces panic-like sensations) produced less anxiety than lack of such control (Zvolensky, Eifert, & Lejuez, 2001; Zvolensky, Eifert, Lejuez, & McNeil, 1999). Relatedly, in a large meta-analysis of human cortisol responses to acute stressors, Dickerson and Kemeny (2004) found that external stressor uncontrollability was a primary feature of the most robust cortisol stress responses. These effects for controllability are also found in the animal literature (e.g., Mineka, Cook, & Miller, 1984).

In addition, there is evidence that perceived control over external and internal events, even in the absence of actual control, is predictive of positive coping and mental health (Skinner, 1995). For example, in panic disorder patients, perceived control (in the absence of actual control) over laboratory panic stressors can influence physiological responding and the occurrence of panic attacks (Sanderson, Rapee, & Barlow, 1989). In fact, a number of theorists have argued that perceived control is more important, and is more predictive of positive outcome, than actual control (Averill, 1973; Mineka & Hendersen, 1985), and nascent experimental evidence supports this claim (Endler, Macrodimitris, & Kocovski, 2000). Higher levels of perceived control over internal anxious responding, as assessed by the second factor of the Anxiety Control Questionnaire (Rapee, Craske, Brown, & Barlow, 1996), were associated with lower anxiety-related interpretive biases in undergraduate samples (Zvolensky et al., 2001) and lower levels of psychopathology in psychiatric inpatients (Lang & McNiel, 2006). That is, initial evidence suggests that perceived control over internal emotional responding—not only the external environment—is associated with positive coping and mental health.

Cognitive behavioral therapy incorporates strategies that specifically aim to increase a sense of predictability and control over anxious responding. For example, self-monitoring of anxiety symptoms, cognitions, and contextual triggers aims to increase a sense of symptom predictability. Breathing retraining, relaxation training, and cognitive restructuring also serve to augment a sense of symptom controllability. For social phobia (Hofmann, 2005), CBT-related increases in perceived internal emotional control and external threat control have been shown to partially mediate the relationship between the estimated social cost of social anxiety and reported anxiety levels.

Despite the ACT stance that "control is the problem, not the solution," it is possible that an increased sense of prediction and control may be a core feature of ACT as well. First, acceptance and other ACT approaches require that a strategy be learned and implemented as a different way of responding to internal cues (see Craske & Hazlett-Stevens, 2002). This process alone may give clients an illusion of internal control in the form of an effortful strategy and response plan. Second, acceptance may reduce distress over the occurrence of aversive anxiety symptoms, which in turn may lessen the frequency and intensity of anxiety symptoms. By ultimately decreasing aversive internal symptoms, acceptance may increase clients' sense of mastery and control over such symptoms. Craske and Hazlett-Stevens (2002) conclude that attempts to control fear and anxiety are a "basic drive" due to the inherently aversive, defense-evoking nature of these states (see Fanselow & Lester, 1988). Therefore, it may not be truly feasible to have a primary treatment motivation or end goal other than fear reduction. Acceptance-oriented treatment approaches may simply offer another form of such control.

It may be argued that internal control is not the aim of acceptance, but simply a by-product or epiphenomenon of acceptance. However, if increases in perceived control over anxiety were not a consequence of an acceptance orientation toward anxiety, would acceptance still be an effective strategy? On the other hand, it may be possible and valuable to teach clients that the notion of control over anxiety is illusory. Clients could learn to place less stock in the feeling of being in control, and this shift in attitude may lessen distress regarding the experience of anxiety. More research would be valuable here.

In addition to perhaps increasing the illusion (and reality) of control, ACT may increase the predictability of anxiety symptoms. As discussed above, a sense of predictability stems from being able to identify and distinguish the internal and/or external contingencies that link the occurrence of one event with another. In CBT, psychoeducation and self-monitoring are two strategies that explicitly link cause and effect in the occurrence of anxiety and fear symptoms. Several strategies that are specific to ACT may function to increase a sense of predictability as well. In ACT, mindfulness, or cultivating connection with the present moment, is linked with the notion of self-as-context or the observing self. Mindful observation of the self and the surrounding environment likely allows patients to notice and comprehend anxiety-related contingencies and thus increases awareness of symptom contingencies (see Roemer & Orsillo, 2002)—the cornerstone of predictability.

Conversely, CBT may inherently contain elements of acceptance. According to the emotional processing theory (Foa & Kozak, 1986; Rachman, 1980), exposure to the feared stimulus leads to the development of a nonfear structure that modifies the original fear structure (Foa & Kozak, 1986), or in a more recent formulation of the theory, competes with the original fear structure (Foa & McNally, 1996). The emotional processing theory proposes that exposure functions via initial fear activation followed by fear reduction within and between exposure treatment sessions.

The assumption that relatively immediate symptom or fear reduction is a desirable goal has been criticized by the acceptance and commitment therapy approach (Hayes et al., 1999). However, a recent reexamination and critique of emotional processing theory has also arisen from within the exposure therapy perspective. Craske and colleagues (Craske & Mystkowski, 2006; Craske et al., 2008) demonstrate that fear reduction within exposure trials is not predictive of overall outcome (i.e., eventual reduction of independently assessed clinical anxiety symptoms). The new approach advocated by Craske and colleagues (see Craske et al., 2006; Craske & Barlow, 2008) is to move away from fear reduction as the central principle of exposure therapy and move toward an optimizing learning approach based on increasing tolerance for fear and anxiety (Eifert & Forsyth, 2005; Forsyth et al., 2006), developing competing nonthreat outcome expectancies, and augmenting the accessibility and retrievability of newly learned outcome expectancies across time and diverse contexts (Craske et al., 2008). Within this new approach to the exposure element in CBT, cognitive restructuring is viewed as a technique to facilitate exposure rather than a direct means to minimize fear and anxiety. These recent developments in the conceptualization of exposure are consistent with the large animal and human literature on learning and memory, and the recognition that performance during training is not a reliable index of learning (Craske & Mystkowski, 2006; Craske et al., 2008) as well as Barlow's unified

treatment protocol for emotional disorders (Barlow, Allen, & Choate, 2004), but have not yet been assessed for efficacy in clinical trials. Randomized clinical trials are needed to determine whether these approaches are more efficacious than traditional CBT or ACT. Given this newly developing approach, the aims of emotional processing theory, which emphasize within-session fear reduction, will herein be conceptualized as part of "traditional" CBT.

By aiming to demonstrate to clients that they can tolerate fear and anxiety or violate exposure outcome expectancies (Craske et al., 2006, 2008; Craske & Mystkowski, 2006), CBT exposure involves the ACT notion of "acting with anxiety." Exposure in a CBT context (whether in traditional CBT or developing models) necessarily includes acceptance of experiencing anxiety and willingness to act with anxiety, at least in the short run. Even within developing models of CBT, through direct exposure, clients learn to tolerate anxiety and to violate outcome expectancies in order that their anxiety will eventually subside (Craske et al., 2006, 2008; Craske & Mystkowski, 2006). Stated otherwise, acceptance and tolerance toward anxiety precedes mastery and control over anxiety. What may differ between the CBT and ACT approach is the time span of acceptance and willingness. In CBT, acceptance and willingness are promoted in the short run in the name of eventual anxiety reduction (i.e., control). In ACT, these approaches are promoted for the short and long run, with valued living (not anxiety reduction) as the stated goal. Whether it is more motivating or realistic to promote short- versus long-term acceptance and behavioral willingness, or to frame exposure in terms of anxiety reduction versus valued living, are empirical questions central to the CBT/ACT debate that would benefit from direct investigation. The latter comparison will be addressed in more detail in the subsequent section.

Whether ACT achieves the aims of traditional CBT—enhanced prediction and control of anxiety symptoms—to the same or greater extent than CBT is also an interesting empirical question. As mentioned above, an acceptance approach to managing anxiety may have the paradoxical effect of increasing perceived control over anxious responding. Temporal analyses of experimental and treatment contexts could evaluate whether acceptance precedes and enhances perceived control or vice versa, or whether they operate in virtual parallel. Furthermore, whether ACT is as effective as newly developing learning-based exposure paradigms in which tolerance of fear and anxiety is a major goal (Craske et al., 2006) is also a compelling future research question. Close examination suggests that the end result of ACT and CBT may be similar: the prediction and control of symptoms. What remains is an investigation of the circumstances under which prediction and control (or fear tolerance and violation of outcome expectancies) are better achieved through a CBT or ACT approach. As Craske and Hazlett-Stevens (2002) and Roemer and Orsillo (2002) have argued (albeit from different perspectives), acceptance may be a particularly appropriate strategy with future-oriented topics related to personal incompetence that are difficult to dispute via argumentation and logic, namely, within generalized anxiety disorder. This hypothesis was initially evaluated by Roemer and Orsillo (Orsillo, Roemer, & Barlow, 2003; Roemer & Orsillo, 2002, 2005, 2007), in an open trial of an acceptance-based behavioral therapy for generalized anxiety disorder, and shows promise. There may be other areas of anxiety-related pathology that lend themselves particularly well to one approach or another. Further research on identifying the disorders and circumstances for which a given approach is effective is clearly needed.

THERAPY OUTCOMES: SYMPTOM REDUCTION VERSUS VALUED LIVING

One of the major ways in which ACT and CBT presumably differ is that ACT aims for valued living (via values-driven behavior) whereas CBT aims for symptom reduction as the outcome of therapy (Eifert & Forsyth, 2005; Hayes et al., 2006). ACT is commendable for directly discussing the important issue of values with clients. Values-based and anxiety-reduction goals, however, may not be mutually exclusive. It seems unlikely that CBT therapists aim to reduce anxiety so that their clients can do nothing all day. CBT does not emphasize valued living as explicitly as ACT and generally endorses that achieving life goals is easier in the context of less anxiety. However, facilitating a fulfilling life may be central to both. Furthermore, there is no evidence that promoting anxiety symptom reduction in CBT versus valued living in ACT results in different therapy outcomes. A related notion is that these two goals of CBT and ACT—symptom

reduction and values-driven behavior, respectively—may interact in ways that are not generally discussed. This point will be taken up shortly.

Regarding symptom reduction and valued living, what may differ between ACT and CBT is how directly valued living versus symptom reduction are addressed in therapy, and the directionality of the relationship between them. In ACT, valued living is addressed directly via creative exercises and explicit discussion; in CBT, it is raised implicitly in the creation and enactment of client-driven exposure hierarchies. In ACT, the emphasis on values-driven behavior may lead to behavioral exposures and, hence, to eventual anxiety reduction. Anxiety reduction that stems from valued living likely reinforces valued living. In CBT, behavioral exposure to feared situations, which likely represent personally valued behaviors, leads to anxiety reduction, which, in turn, results in greater likelihood of engagement in previously avoided, valued behaviors. Exposure also may lead to a greater sense of self-efficacy, mastery, and control, and, hence, to greater confidence in one's capacity to work toward life goals and values.

The discussion of valued living and values-driven behavior raises an underlying assumption by ACT researchers: life values-based goals are more appealing and motivating to clients than anxiety-reduction goals. Future research could empirically address this interesting question via direct experimentation. For example, by randomly assigning the framing of exposures for anxious individuals in values versus symptom reduction terms, one could assess which has more motivational appeal, greater self-reported and behaviorally assessed willingness to conduct the exposures, and fewer dropouts. Of course, immediate or short-term outcomes are perhaps not a good reflection of the more distal outcome of living a more valued life. Beyond symptom reduction or behavioral willingness, exploring personal values may lead to benefits beyond those traditionally measured in behavioral therapy research. Measures that assess the values-exploration element of ACT are needed to better understand the impact of an explicit focus on life values.

In addition, the intuitive and scientific appeal of this direct comparison approach provides valuable information but does not address what may be a more subtle relationship between symptom reduction and life values in the context of anxiety treatment. The relationship between symptom reduction and valued living perhaps may be better conceptualized as a mediation hypothesis. That is, symptom reduction and/or increases in perceived prediction and control may mediate increases in value-driven behavior. A second path may exist as well: increases in value-driven behavior may heighten perceived control and reduce anxiety symptoms via direct exposure. Research may explore whether the first path predominates in CBT and the second path predominates in ACT, or whether one path best captures improvements in both treatments. In summary, moving beyond a narrow and dichotomous conception of treatment outcomes facilitates a more sophisticated examination of commonalities and outcome paths within and between each therapy.

MEDIATORS OF THERAPEUTIC CHANGE

At the heart of the discussion of similarities and differences between ACT and CBT lies the need to investigate the processes or mechanisms by which these two therapies produce change. Do these therapies represent truly distinct pathways to change, or are they merely variations on a theme (or some of both)? Even in the case that there are no differences in treatment outcome, it would be a conceptual leap forward to outline distinctive pathways to the successful psychotherapy treatment of anxiety disorders.

Mediators are variables measured at baseline, mid-, and posttreatment that identify why and how a given treatment works (Kraemer, Wilson, Fairburn, & Agras, 2002). Examining treatment mediators not only presents the opportunity for significant scientific gains but also presents significant challenges. In the remainder of this section, the research on mediators of ACT and CBT for anxiety disorders will be briefly perused. But first, in framing the discussion of treatment mediation in ACT and CBT, a discussion of the considerations and challenges of this line of research and potential ways to overcome them will be put forth.

Establishing that changes in the mediator cause changes in treatment outcome requires that measurement of mediators occur prior to the assessment of treatment outcomes. Treatment mediators need to be measured during treatment, not only at pre- and posttreatment, in order to conclusively demonstrate directional causality (see Weersing & Weisz, 2002). What point in treatment is best for assessing mediators of ACT

and CBT for anxiety disorders? Is there a window of critical timing for measuring mediators in ACT and CBT, and is it the same window? For example, research on group CBT for panic disorder found that the largest reduction of symptoms was during the first four treatment sessions (Penava, Otto, Maki, & Pollack, 1998). Given that the early sessions of ACT are often devoted to creative hopelessness (i.e., challenging the clients' goal to rid themselves of anxiety symptoms; Eifert & Forsyth, 2005), but may not yet teach strategies for approaching anxiety, perhaps the critical time frame for assessing changes in ACT occurs later in treatment after new strategies have been developed. Research on ACT and CBT also could assess whether the time frame for clinical improvements depends more on individual difference variables or the particular treatment approach. Clearly, more research is needed to assess critical junctures of therapeutic change in ACT and CBT for anxiety disorders.

A second challenge is which mediator to measure. This is challenging for newer treatments such as ACT, because well-validated measures of specifically hypothesized treatment mechanisms (and outcomes) are still in the process of being established (for an exception, see the Acceptance and Action Questionnaire; Hayes et al., 2004). A related question is whether a study comparing processes in ACT versus CBT uses the same mediation measure for both or different measures for each. Assessing the same mediators across both treatments, including measures that are hypothesized as specific to each, facilitates the examination of shared and distinct processes of change across ACT and CBT. Such an undertaking allows for direct examination of many of the questions put forth in this article.

Cognitive and attentional processes may represent mediational pathways with the potential to illuminate similarities and differences between CBT and ACT. Different strategies for approaching cognitions and managing attention in CBT and ACT may differentially impact these processes and facilitate comparisons of CBT and ACT mediation pathways. Threat-based attentional biases herein are explored as an example.

A broad array of evidence is consistent with the notion that attentional processes are central to emotion regulation and to the development and maintenance of anxiety disorders (see Craske, 1999, 2003). The anxiety-related attention process with the most empirical support is bias in attentional allocation toward threat, which is proposed to contribute to the etiology and maintenance of anxiety disorders (Mogg & Bradley, 1999; Williams, Watts, MacLeod, & Mathews, 1988). Attentional biases toward threat differentiate nonanxious and anxious individuals (e.g., Asmundson et al., 1992; Bradley et al., 1998, 1999, 2000) and there is initial evidence to support a causal role of attentional biases in the etiology of anxiety and emotional reactivity (MacLeod et al., 2002, 2004; Mathews & MacLeod, 2002).

Given the proposed central role of threat-based attentional biases in anxiety disorders, might CBT and ACT affect these biases differently? Reduction of attentional biases on the color-naming Stroop task have been observed following CBT treatment for spider phobia (Lavy, Van den Hout, & Arntz, 1993), generalized anxiety disorder (Mathews, Mogg, Kentish, & Eysenck, 1995), and social phobia (Mattia, Heimberg, & Hope, 1993, reductions for social threat words only). However, potential mediators of these effects, such as changes in dysfunctional beliefs and cognitions about anxiety, remain largely unexamined. Further research is needed to test this hypothesis and increase our understanding of the plasticity and modification of attentional biases following intervention.

It is not yet known how well ACT impacts attentional biases or which processes mediate such changes. However, it is possible that ACT and CBT may evoke different processes to impact attentional biases. One of the six proposed facets of ACT is mindfulness, the practice of which involves redirecting attention again and again (as the mind wanders) back to the present moment (Kabat-Zinn, 1990). Mindfulness, therefore, is based on deliberate attentional control. Derryberry and Reed (2001, 2002) demonstrate the role of voluntary attentional control in facilitating faster disengagement from threat among high-trait anxious individuals. It seems reasonable and straightforward to investigate whether training in mindfulness-based attentional control facilitates the attentional control skills discussed by Derryberry and Reed (2001, 2002). Whether ACT reduces threat-based attentional bias by increasing attentional control via training in mindfulness, and whether this process is more belief-driven in CBT, may have theoretical and clinical implications.

The actual research to date on mediators of change in ACT and CBT for anxiety disorders is limited, particularly given the recent development of the former. Three published, peer-reviewed ACT intervention studies (Bond & Bunce, 2000; Forman, Herbert, Moitra, Yeomans, & Geller, 2007; Zettle, 2003) empirically address potential treatment mechanisms. The first relevant study for anxiety disorders treatment is a small (n = 24), randomly assigned, ACT versus imaginal systematic desensitization six-session trial for the treatment of mathematic anxiety among university students (Zettle, 2003). Session-by-session participant reports of their progress and the session quality did not differ between treatments. Among ACT clients only, pretreatment levels of experiential avoidance, or the tendency to avoid unwanted thoughts and feelings, were positively associated with posttreatment improvement in math, test, and trait anxiety. However, this finding represents a treatment-specific moderator rather than mediator of outcome.

The second relevant study randomized individuals at a university counseling center with clinically significant anxiety and/or depression to receive ACT or cognitive therapy (CT; Forman et al., 2007). Importantly, no differences were found in ACT versus CT across all measured outcome variables, including depression, anxiety, quality of life, life satisfaction, and clinician-rated global functioning. This study acknowledged that formal mediational analyses were not possible because mediational variables were assessed at the same time point as outcome variables (e.g., posttreatment). However, utilizing a method from Hofmann (2004), the study assessed whether change scores in proposed mediators and treatment outcome variables differed by treatment condition. Different variables appeared to mediate outcomes for CT compared to ACT. Specifically, changes in "experiential avoidance," "acting with awareness," and "acceptance" mediated changes in the ACT group relative to the CT group, whereas "describing" and "observing" one's experience appeared to mediate outcomes for the CT group. Although interesting for theoretical reasons, these results should be interpreted cautiously because a number of them were not fully significant ($p < .10$). In addition, study inclusion criteria were based on anxiety and depression self-report measures rather than clinical interviews. While perhaps making the study more externally valid, the heterogeneous sample limits the conclusions that can be drawn regarding the treatment of specific anxiety disorders.

The third mediator-focused ACT intervention study (Bond & Bunce, 2000) applied ACT toward enhancing employees' ability to cope with work-related stressors. Improvements in ACT were mediated by increases in acceptance as measured by the Acceptance and Action Questionnaire (Hayes et al., 2004). However, mediator and outcome variables were assessed at the same time point, thus not providing a true mediational test.

Despite strong evidence for the efficacy of CBT in treating anxiety disorders, the precise mechanisms of action remain somewhat unclear. CBT researchers have proposed mechanisms ranging from reductions in the number of negative thoughts and worries, modification of anxiety and fear-related beliefs/schemas, increases in perceived control over anxiety-related symptoms, and reductions in behavioral avoidance. Relative to the large number of CBT trials, comparatively few CBT treatment studies have directly tested these proposed mechanisms using formal mediation analyses. The studies that do test mediational models focus mostly on panic disorder and social phobia. For panic disorder, a number of studies report that reductions in anxiety-eliciting cognitions predict improvement in CBT for panic disorder in adult and child samples (Clark et al., 1994; Kendall & Treadwell, 2007; Michelson, Marchione, Greenwald, Testa, & Marchione, 1996; Prins & Ollendick, 2003; Treadwell & Kendall, 1996). In addition, a large study of adult panic disorder patients (Smits, Powers, Cho, & Telch, 2004) demonstrated that change scores from pre- to posttreatment on a fear of fear index accounted for one-third of the variance in symptom reduction. In a randomized controlled trial for social phobia, Hofmann (2004) found that changes in estimated social cost from pre- to posttreatment mediated reductions in social anxiety at posttreatment and six-month follow-up in the CBT group. The behavioral therapy group showed a similar pattern of results except that the social cost mediation analysis was nonsignificant at follow-up. Hence, cognitive mediation of treatment outcomes occurred in the absence of explicit cognitive strategies for the behavioral therapy group. A further analysis by Hofmann (2005) demonstrated that the association of estimated social cost and subjective anxiety is partially mediated by perceived emotional control over anxiety-related

symptoms. A more recent study (Hofmann et al., 2007) preliminarily demonstrated that cognitive mediation of panic disorder outcomes occurs in cognitive behavioral but not psychopharmacological treatment (e.g., imipramine), suggesting a unique pathway to change in CBT. However, the majority of these panic disorder and social phobia CBT mediation studies did not measure the mediator during treatment, and, thus, do not meet the temporal precedence criterion of mediation (see Kraemer et al., 2002; Weersing & Weisz, 2002). On the other hand, a brief (three-session) social phobia exposure treatment study that assessed mediators at multiple within-treatment time points (Smits, Rosenfeld, McDonald, & Telch, 2006) found that reductions in probability biases but not cost biases resulted in fear reduction (cost bias reductions were merely a consequence of fear reduction). Similar findings were found in an earlier pre–post treatment study by McManus et al. (2000). Whether the divergent findings of the Hofmann (2005) and Smits et al. (2006) studies stem from differences in treatment approaches (CBT versus exposure therapy), length of treatment (12 weeks versus three sessions in 1 week), or measurement period (pre–post treatment versus multiple treatment time points) will need to be resolved in future studies.

Despite mixed results in pinpointing the precise nature of cognitive mediation in social phobia, these combined studies demonstrate initial support for the reduction of anxiety and fear-related cognitions as a treatment mechanism among adults treated for social phobia and adults and children treated with CBT for panic disorder. The Hofmann (2004) and Smits et al. (2006) studies suggest that cognitive mediation may stem not only from cognitive treatment strategies, but may be a consequence of behavioral strategies as well.

Notwithstanding support for a cognitive mediation model in panic disorder and social phobia, several CBT mediation studies fail to support predicted pathways. Evaluating competing structural equation models, Burns and Spangler (2001) found no evidence of a mediational link between dysfunctional attitudes and changes in anxiety and depression among a sizable sample (n = 521) of CBT-treated outpatients. Their analysis supported the existence of a third, unknown variable with concurrent causal effects on dysfunctional attitudes, anxiety, and depression, and mediating their modification by CBT. However, they assessed patients only at pre- and post-treatment, limiting conclusions about direct causation. In addition, less than 10% of their sample had an anxiety disorder only (the majority had co-occurring anxiety and depression or a mood disorder only), potentially complicating the application of their results to anxiety disorders.

Mogg et al. (2001) assert that much of the scientific evidence in support of the basic assumptions of CBT—the existence and influence of core schemas and beliefs and their modification by treatment—is plagued by methodological problems and in need of further elucidation and support. To examine direct causation of treatment outcome by treatment mediators, future research would benefit from inclusion of mid-treatment measures.

In exploring issues of mediation, it seems appropriate to end with an important arbiter of a therapy's worth: treatment outcome. If ACT and CBT demonstrate different pathways and processes of change, do they differentially impact outcome? Or are these two therapies simply different ways of arriving at the same level of symptom and overall life improvement? In addressing these central questions, to what extent does the answer depend on the type of outcome we measure? We need a broader range of treatment outcome measures, which ACT's emphasis on life values work (hence, quality and meaning of life) has pushed the field to adopt. For example, to what extent does anxiety treatment help participants to seek meaningful work, nurture their children, be a good partner, enjoy friendships, and so forth (e.g., Miklowitz, 2005)? And do these broader measures contribute to a deeper, more clinically relevant understanding of treatment outcome as compared to traditional symptom measures? Or do they add relatively little variance to our analyses because they are highly correlated or synonymous with measures of symptom reduction? Measuring a broader range of potential mediators at different treatment time points is an important step toward addressing these questions. It is also possible that individual differences moderate treatment outcomes. Although treatment matching for anxiety disorders often yields mixed results (see Craske & Rowe, 1997), this potentially critical but understudied area warrants examination in the context of ACT and CBT. Similarly, treatment integrity and therapist competence are important factors to examine in future studies.

SUMMARY

This article presents a critical examination of stereotypical differences between ACT and CBT for anxiety disorders. Throughout the discussion, future research questions and directions are offered with the aim of broadening and deepening the nature of questions pursued in examining these therapies. One paradigm shift to emerge from this discussion involves the approach to comparing different therapies. The traditional approach involves determining which among competing therapies reduces symptoms to the greatest extent—or, from an ACT perspective, which therapy leads to strongest enactment of values-driven behaviors. Occasionally, when no differences in outcomes are found, current studies examine differences in mediational pathways. The approach that undergirds the present discussion emphasizes the importance of looking at both the commonalities and differences of ACT and CBT. While not a radical concept, the emphasis on shared and distinct processes and outcomes in ACT and CBT may progress our knowledge of these therapies to a greater extent than an emphasis on differences or efficacy alone.

CONCLUSION

A central mission of the behaviorally based treatment enterprise is to identify the maximally efficient and effective elements of long-lasting behavior change to help our clients maximize happiness and life fulfillment (as is implicitly or explicitly assumed). The development of new approaches such as ACT contributes fresh perspectives on the treatment of anxiety disorders and a reconsideration of the mechanisms that power the success of behaviorally based therapies. The risk is that social cognitive processes and enthusiasm (or its opposite) for a new, promising therapy can encourage generalizations and sharpen dichotomies between new and old therapies, making it more difficult to examine true differences, new developments, and underlying similarities. We hope that the present discussion encourages researchers to think creatively in conceptualizing therapeutic elements of CBT and ACT with the aim of identifying the mechanisms and honing the theories that drive the behavioral therapy enterprise.

NOTES

1. Mindfulness, acceptance, and "mindful acceptance" (i.e., another phrase for mindfulness) will be defined in greater detail in the next section. Also note that mindfulness as a treatment approach is not exclusive to ACT—multiple other treatments integrate or are based on mindfulness, including several published prior to ACT (e.g., Kabat-Zinn, 1990; Linehan, 1993).

2. Note that in the original formulation of ACT (Hayes et al., 1999) explicit exposure exercises were not included, and the emphasis was on behavioral willingness/committed action. In the recent application of ACT to anxiety disorders (Eifert & Forsyth, 2005), values-based exposure was included as a major treatment component. These differences reflect the variety of ways that ACT has been applied and interpreted in distinct treatment contexts.

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