Running head: EXPOSURE AND COGNITIVE INTERVENTIONS FOR ANXIETY

Exposure Therapy and Cognitive Interventions for the Anxiety Disorders: Overview and Newer Third Generation Perspectives

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Abstract

Behavioral and cognitive-behavioral therapies are the treatments of choice for all anxiety disorders. This chapter provides a broad overview of both traditions, with an eye on the relative efficacy of exposure therapy versus cognitive interventions. In so doing, comparisons are made in terms of theoretical rationale, methods, mechanisms of action, and treatment efficacy. The second half of the chapter describes recent advances highlighting emotion regulatory processes that are increasingly becoming central targets of behavioral and cognitive-behavioral interventions for anxiety-related problems. The chapter concludes with a discussion of conceptual and methodological issues and directions for future research.

The overarching goal of this chapter is to compare behavioral and more explicitly cognitive approaches for the treatment of all anxiety disorders. In so doing, we take a broad brush stroke in describing theoretical rationales, methods of treatment, mechanisms and processes underlying therapeutic change, and work supporting treatment efficacy. The remainder of the chapter outlines psychological and experiential variables and processes that are now considered crucial in explaining the genesis, maintenance, and alleviation of anxiety *disorders* rather than anxiety per se (Barlow, Allen, & Choate, 2004; Craske, 2003). In so doing, we draw attention to broad-band emotion regulatory processes for three reasons.

First, the emerging consensus is that emotional regulation processes, namely the tendency to avoid, suppress, or escape from aversive emotional states and the contexts or cues that may evoke them, characterize virtually all anxiety disorders (Barlow, 2002; Barlow et al., 2004; Rosen & Schulkin, 1998). Second, findings from the field of emotion regulation suggest that the tendency to regulate emotion is heavily dependent on verbal-cognitive processes, may be harmful when applied to aversive emotional states, and function to transform normal anxiety and fear into disordered anxiety and fear. Third, it is becoming increasingly clear that the application of self and emotion regulation strategies in situations and contexts where it is unnecessary is largely responsible for the wide-ranging functional impairment typical of many persons with anxiety disorders.

Indeed, rigid and inflexible forms of emotion regulation, when juxtaposed with fear learning experiences and powerful competing approach contingencies that cannot be avoided without significant costs, likely function as an important predisposition for the development and maintenance of *disordered* fear (see Forsyth, Eifert, & Barrios, in press, for a detailed account). Collectively, this work has led to a rethinking of the mastery and control agenda that has come to characterize many mainstream behavior therapies for the anxiety disorders (Barlow et al., 2004). It also reaffirms that newer third generation behavior therapies (e.g., Acceptance and Commitment Therapy, Hayes, Strosahl, & Wilson, 1999; Functional Analytic Psychotherapy, Kohlenberg & Tsai, 1991) – including unified treatment protocols based on them for persons suffering from anxiety disorders (see Eifert & Forsyth, 2005) – may be on the right track in making emotion regulatory processes explicit targets in therapy.

Our intent here is to provide a broad overview of this work with an eye on how it may help advance our understanding of anxiety disorders and lead to improved clinical interventions, including modifications to the most effective aspects of cognitive-behavioral treatments. To set a context for the discussion, we begin with a brief overview of first (i.e., behavioral) and second (i.e., cognitive) accounts of the anxiety disorders, followed by a critical evaluation of behavioral and cognitive-behavioral accounts of anxiety and fear learning within an emotion regulation context (see Forsyth et al., 2005, for details). The remaining sections describe findings from emotion regulation research that are germane to understanding the maintenance of anxiety-related problems and the basic and applied implications that follow from this account. Using Acceptance and Commitment Therapy (ACT; see Eifert & Forsyth, 2005; Hayes et al., 1999) as an example, we show how acceptance, mindfulness, and value-guided behavior change strategies can be used to alter the function of problematic thoughts and feelings (not their form) in the context of exposure-based interventions. The chapter concludes with a discussion of conceptual and methodological issues and directions for future research.

RATIONALES OF FIRST AND SECOND-GENERATION BEHAVIOR THERAPY

In this section we briefly review the traditional behavioral and cognitive-behavioral accounts of anxiety. We then describe the core features of a model, described in more detail elsewhere (see

Forsyth et al., 2005), that outlines a new functional behavioral approach. In this model emotion regulation strategies and language processes are at the core of the transformation from normal experiences of fear and anxiety to disordered experiences of fear and anxiety. We do not address biological theories here because psychological and biological theories of anxiety have largely pursued their own agenda. Rachman (2004) also points out that, with few exceptions, biological theories seek to explain particular disorders. They do not provide broad theories of anxiety that have been the hallmark of behavioral models.

Behavioral Views

Behavior therapy is an intensely empirical, pragmatic, direct, time-limited, and minimally inferential approach. It emerged as a major player on the psychotherapy scene in the 1950s because of these characteristics, and for reasons having to do with its close affinity with learning theory, learning principles (both classical and instrumental), and experimental psychology. Learning principles and learning theories provided the chief inspiration for intervention technologies that could be used to achieve concrete clinical outcomes. Behavior therapists focused on direct symptom relief and behavior change, not hypothesized desires, unconscious wishes, beliefs, or clinical concepts and methods that were too subtle, too complex, imprecise, or too broad in scope (Hayes, 2004a). These first-order change targets became a defining characteristic of behavior therapy, with the anxiety disorders serving as the initial proving ground (Wolpe, 1958). The outcome was a range of learning based models and intervention technologies that worked not just with anxiety disorders, but also a range of other behavioral problems.

Early behavior therapy owes much of its success to the conditioning account of the etiology and maintenance of anxiety disorders: Anxiety disorders are learned or acquired via a process of classical conditioning (Eysenck, 1987; Marks, 1969, 1981; Wolpe, 1958; Wolpe & Rachman, 1960) and maintained via negative reinforcement through operant escape and avoidance behaviors (Mowrer, 1939, 1960). Consistent with this view, phobias and anxiety disorders were conceptualized in fear conditioning terms. Thus, when an otherwise benign stimulus occurs in close contingency with an anxiety-inducing event, it becomes highly likely that the stimulus will later elicit anxiety and fear without further trauma. Such learning can also occur via vicarious observation (Mineka & Cook, 1993; Mineka & Ben Hamida, 1998) and informational transmission (Rachman, 1990).

Regardless of the pathway, it is now becoming increasingly clear that a relation between otherwise neutral stimuli and a false alarm (i.e., a panic attack) may be enough to set this learning in motion (Barlow, 1988; Bouton, Mineka, & Barlow, 2001; Chambless & Gracely, 1989; Forsyth, Daleiden, & Chorpita, 2000; Forsyth, Eifert, & Thompson, 1996; Forsyth & Eifert, 1996a, 1998a, 1998b; Wolpe & Rowan, 1988). This view also is at the core of contemporary thinking about the critical processes involved in fear learning, wherein experiencing panic attacks or panic-like responses function as both critical conditioning events in the genesis of panic and other anxiety disorders (Bouton et al., 2001) and central targets in exposure-based therapy.

Cognitive and Cognitive-Behavioral Views

One logical consequence of the conditioning account was that successful treatment needs to involve helping clients to confront feared stimuli and contexts in a safe therapeutic environment so as to (a) counter the powerful action tendency to avoid or escape fear evoking stimuli and situations and thereby (b) allow for new corrective emotional learning via extinction of excessive fear and anxiety (Wolpe, 1958). This view, based largely on exposure as a

treatment technology and extinction as a process, survived more or less intact until the 1970s, when criticisms mounted suggesting that fear conditioning does not adequately explain the etiology and maintenance of anxiety disorders (Rachman, 1977, 1991). Learning principles and learning theories had failed to provide and adequate account of human language and cognition. There was limited behavioral research addressing the relation between language and emotional meaning, and very little of this work had any clear practical utility. The need to address thoughts and feelings in a more central way was unmet and set the stage for cognitive theories and constructs.

The cognitive view emerged to provide a more forceful and direct account of how feeling, affect, and cognitive processes contribute to human suffering. Cognitive theorists and therapists initially drew upon clinical observation for their theoretical and practical inspirations, and many later turned to information processing models to fill in the gaps with a technical account. This cognitive information-processing perceptive (and there are several) draws heavily on mediational constructs (e.g., networks, nodes, expectancies, appraisals, and schemata) borrowed from information and computer science (e.g., Williams, Mathews, & MacLeod, 1996; Williams, Watts, MacLeod, & Mathews, 1988). This approach emphasizes the role of memory, attention, catastrophic thinking patterns, irrational beliefs, unrealistic self-statements and appraisals, and the like in the etiology, maintenance, and treatment of anxiety disorders. Accordingly, pathological anxiety is thought to result from selective processing of information perceived as signifying threat or danger. Distorted information processing, in turn, contributes to physiological, affective, and behavioral symptoms of anxiety disorders.

The traditional cognitive theory posits such beliefs, and interpretations of events based upon them, become problematic and inflexible and thus yield emotional distress (Beck, 1979). This view differs from the traditional behavioral account in that it is the individual's interpretation of events, rather than the events themselves, that leads to distress (Clark, 1986). That is, an individual's belief system may cause them to interpret events in a rigid and maladaptive fashion, thus leading to pathological behavior. For example, individuals with social anxiety disorder tend to hold negative beliefs regarding their own social behavior, rating it more harshly than the behavior of others (Stopa & Clark, 1993). Clients with panic disorder, on the other hand, hold beliefs that their normal bodily sensations are signs of danger (Clark, 1986).

Indeed, most cognitive accounts stipulate that individuals with anxiety disorders experience overactive cognitive patterns that continually structure external and internal experiences as signs of danger (Beck, Emery, & Greenberg, 1985). Despite some nuances, all emphasize how verbal-symbolic processes convey emotional meaning and how emotions and resulting behavior depend on such processes.

> The fundamental idea is that emotions are experienced as a result of the way in which events are interpreted or appraised. It is the meaning of events that triggers emotions rather than the events themselves. The particular appraisal made will depend on the context in which an even occurs, the mood the person is in at the time it occurs, and the person's past experiences…. Effectively this means that the same event can evoke a different emotion in different people, or even different emotions in the same person on different occasions. (Salkovskis, 1996, p. 48)

These notions have had great appeal and were quickly integrated within behavior therapy and became known as cognitive and cognitive-behavior therapy (Beck et al., 1985).

METHODS OF TREATMENT

Advances in behavioral and cognitive research and theory over the last two decades have led to an improved understanding of variables and processes involved in the etiology and maintenance of anxiety disorders. All have also yielded a range of time-limited intervention technologies that have helped clarify potential therapeutic parameters needed for developing and improving interventions. The collective practical impact of this work is startling – cognitive-behavior therapies for each of the anxiety disorders have been empirically-supported since their emergence (Chambless, et al., 1998) and are now considered the treatments of choice for these disorders (Barlow, 2002). The purpose of this section is to describe methods of treatment that follow from behavioral and cognitive-behavioral conceptualizations of anxiety disorders. As will be seen, both behavioral and cognitive interventions are fundamentally about first-order change methods. That is, intervention procedures that are about targeting problematic psychological and emotional content directly.

Exposure-Based Behavioral Approaches

All exposure-based treatments involve clients confronting previously avoided objects or situations, including unwanted thoughts and feelings, while resisting the tendency to avoid or escape from them. In short, exposure-based interventions arrange for structured approach behavior, and thus allow extinction processes to work. Though one cannot infer etiologic process from treatment response, the notion that exposure depends on extinction has a long history and follows from the view that people learn to be afraid, they are not born with an anxiety disorder. Therapy, therefore, presents an opportunity for new corrective emotional learning.

Though there are variants (e.g., flooding), most exposure therapies are conducted in a gradual and systematic fashion under the guidance of a trained therapist. The targets of exposure may be interoceptive (e.g., thoughts, physical sensations, worry, painful memories) and/or exteroceptive (e.g., environmental cues and situations that evoke fear) using either imaginal or *in vivo* procedures. Often the process of exposure therapy begins with the therapist and client developing a hierarchy or rank-ordered list of the least-to-most feared stimuli. Thereafter, clients are encouraged to approach each element of the hierarchy, beginning with the least anxiety inducing one, and for each step to remain in its presense until anxiety attenuates to manageable levels. By preventing escape or avoidance during such exposure-based procedures, anxiety-related distress and the probability of the reemergence of fear to specific feared stimuli are eventually minimized (Ost, 1997).

The modality of exposure therapy (i.e., imaginal, *in vivo*, or virtual reality), and the to be exposed stimuli targeted during treatment, typically depends on a clients' unique presenting problems. For example, the target stimulus could consist of a bodily sensation for panic disorder, a social encounter for social phobia, a specific object or situation for specific phobias, contamination for obsessive-compulsive disorder, a catastrophic image for generalized anxiety disorder, or a traumatic image for post traumatic stress disorder. It should be noted that exposure-based interventions are typically used in conjunction with other therapeutic components, such as cognitive restructuring and relaxation exercises (i.e., breathing retraining, systematic muscle relaxation). This is interesting given that it is widely known that exposure therapy (*in vivo*, imaginal, and interoceptive) is sufficient for good clinical outcomes when used alone in the treatment of anxiety disorders (Ladouceur, 1983; Marks & Horder, 1987; Emmelkamp, 1994; de Beurs et al., 1995). This observation highlights the fact that exposure

therapy is not a clickety-clack "get rid of anxiety" process, but rather can broadly impact how people think about their anxiety, fear, themselves, and their world.

Cognitive and Cognitive-Behavioral Approaches

Problematic psychological content is thought to play a significant role in the etiology, exacerbation, and maintenance of anxiety disorders. Thus, cognitive approaches employ numerous strategies that target distorted, unrealistic, or inappropriate patterns of thinking directly, namely variants of cognitive restructuring (Newman, 2003). This intervention strategy, in turn, typically begins with helping clients to monitor their cognitive style and understand the role it has in their anxiety problems and associated symptom compaints. Clients are then taught cognitive skills that will allow them to be more flexible, and to modify their problematic ways of thinking. The final step is to create new behavioral repertoires that run counter to previous patterns of thinking.

Various homework assignments are often included to facilitate cognitive restructuring. For instance, clients may be asked to keep a daily record of dysfunctional thoughts (Clark, 1986) and to learn to apply methods to challenge such thoughts with more realistic thoughts and appraisals. Yet, the ultimate purpose of such interventions is to modify maladaptive cognitive schemas that underly problematic thinking and patterns of behavior. Viewed through Beck and Clark's (1997) information processing model, cognitive restructuring aims to develop more adaptive and realistic appraisals of threat as a mechanism toward psychological health.

Behavioral experiments are also routinely used to facilitate cognitive restructuring (Clark, 1986). In this procedure clients test cognitive distortions by engaging in an anxiety provoking behavior and carefully evaluating the consequences. These exercises aim to identify the faulty nature of the client's cognitions (Dobson & Hamilton, 2003), and can be conducted in-session using exposure or role playing or with in vivo homework assignments (Newman, 2003). For example, an individual with social phobia may believe that she will be laughed at or otherwise ostracized if she attends a party. The therapist would encourage her to attend a party despite her fears, and then evaluate the accuracy of her predictions. If the client's predictions were inaccurate, then the therapist would point out and discuss this discrepancy with the goal of modifying the client's threat schema. If the client's prediction for some reason were accurate, the therapist would explore possible reasons for this and work to modify the client's problematic behavior. Thus, most cognitive strategies involve what many would call exposure-based exercises. Indeed, the very act of contacting the problematic thought could be thought of as exposure. For these and other reasons it is quite difficult to disentangle purely cognitive from more behaviorally based exposure interventions.

MECHANISMS AND PROCESSES UNDERLYING THERAPEUTIC CHANGE

While the efficacy of exposure and cognitive therapy for the anxiety disorders has been well established (Chambless et al., 1998), overwhelming evidence suggests that the effectiveness of both are relatively short-lived. Indeed, a significant number of individuals experience the reemergence of symptoms following the end of successful treatment (Rachman, 1989), and many other anxious individuals experience little or no benefit at all from these gold-standard therapies (Craske, 1999). As a result, the past two decades has seen increased attention to therapeutic mechanisms of change. This section considers the critical variable that are theorized to account for the therapeutic effects of exposure therapy and cognitive interventions.

Behavioral Interventions

All exposure-based interventions for anxiety disorders involve a complex interaction between classical and instrumental learning processes. Exposure, by definition, involves the simultaneous

approach of a feared event and willingness to remain fully in contact with that feared event. To derive maximal benefit from exposure therapy requires that anxious clients fully engage the feared situation, without resistance, avoidance and/or escape, while also allowing themselves to experience anxiety and fear that are likely to occur (Foa & Kozak, 1986). The approach behavior – itself an intrumental or operant response – is designed to counteract the powerful action tendency to avoid or escape from aversive events. Thus, with approach also comes the possibility of new learning and the benefits of collateral extinction processes that may accompany approach behavior. More specifically, exposure therapy attenuates the severity of fear through extinction processes by repeatedly presenting fear-evoking stimuli (i.e., spider) in the absence of traumatic consequences (i.e., spider bite).

The process of extinction has provided a framework that has helped conceptualize important principles within exposure therapy. Since the early days of behavior therapy, in fact, learning theory has guided the development of therapeutic procedures by contributing theoretically and experimentally derived principles with a measure of practical utility. Still, we know much less about why exposure therapy works, than the fact that it does work. This is due, in part, to the research agenda in this area that has tended to focus on showing good outcomes, not in elucidating relevant processes responsible for those outcomes.

This state of affairs has resulted in a great deal of confusion about the processes involved in exposure-based interventions. For instance, it is common to hear exposure therapy discussed as unlearning or counterconditioning, or worse as being non-cognitive. None of these are accurate. Indeed, recent theoretical and conceptual developments in learning theory (Bouton, 1988, 1993, 2000, 2002) have shown that extinction is not unlearning, but rather new learning. Bouton and colleagues (1993), for instance, have shown that extinction is an active learning process whereby the conditioned association is not destroyed or unlearned. Instead, this process reflects the development of new relational learning. This learning, in turn, tends to be highly context dependent, and thus does not generalize well outside the extinction context (see Bouton, 2002, for a review). In fact, when a fearful response is extinguished in one context (such as the laboratory or therapist's office), there is a high probability that the fearful response with reemerge when a laboratory animal or human is in a new context that was different from the extinction context (Bouton, 1988, 1994). A handful of studies with clinically-anxious individuals have shown as much (Mineka, Mystkowski, Hladek, & Rodriguez, 1999; Mystkowski, Craske, & Echiverri, 2002; Rodriguez, Craske, Mineka, & Hladek, 1999). Thus, when clients are faced with a previously extinguished fear-evoking stimulus in a new context, they are likely to show a return of fearful responding to that stimulus.

Collectively, this work shows that extinction does not depend on unlearning of the emotive properties of a feared stimulus, but rather learning something new about that stimulus in and within a context. When the context changes, so may the functions of the previously feared event. This work, in turn, has numerous implications for relapse following exposure-based interventions for anxiety disorders and can address previous criticisms of the traditional conditioning account where the focus has been on conditioning in relative isolation from cotextual factors (Forsyth et al., in press; Mineka & Zinbarg, 1996).

Cognitive Interventions

Most cognitive theories of anxiety pathology suggest that effective therapy depends on modifying maladaptive beliefs and ultimately the underlying schemas responsible for these beliefs (Beck, 1979). That is, if pathological anxiety is a result of maladaptive threat schemas, then changing the structure of these schemas should result in symptom alieviation.

Unfortunately, due to their unobservable nature, it is extremely difficult to establish causality when studying the mechanisms involved in cognitive therapy. The extent to which a schema or belief has been modified must be inferred through self-report measures such as Fear of Negative Evaluation or Irrational Beliefts Test (Mattick & Peters, 1988; Mattick, Peters & Clarke, 1989). Responses to such measures may, in turn, be confounded with anxiety itself (Feske & Chambless, 1995). Though cognitive therapy sets out to change the structure and content of the clients thoughts, there are no direct measures of the purported mechanisms and processes underlying cognitive therapy.

Nonetheless, there is a large body of evidence suggesting that changes in self-reported cognitive style may mediate treatment outcome. In the treatment of social phobia, for instance, Foa and colleagues (1996) showed that estimated social cost and degree of overestimation of negative social consequences was highly associated with syptom levels at post-treatment. Further, Hofmann (2004) compared social phobics receiving either cognitive-behavior group therapy, exposure group therapy, or wait-list control. The results showed that changes in estimated social cost mediated treatment effects in both treatment groups. Yet, only the cognitive-behavior therapy group continued to improve 6 months post-treatment. This work suggests that cognitive interventions lead to better maintenance of treatment gains, possibly mediated through changes in perceived social cost.

Several studies have also suggested that cognitive mediation plays a role in the treatment of panic disorder and specific phobias. There is ample evidence that changes in catastrophic thinking about panic predict treatment outcome (Chambless & Gracely, 1988; Clark et al, 1994; Margraf, Barlow, Clark, & Telch, 1993; Michelson et al., 1990). Changes in negative cognitions have also been found to be correlated with phobic fear reduction (Shafran, Booth & Rachman, 1993; Rachman & Whittal, 1989). However, once again, the correlational nature of these findings limits the conclusions that can be drawn from this research. Since these correlations run across treatment modalities, it is difficult to identify which elements of treatment are responsible for the changes. It is also equally possible that fear reduction leads to cognitive change. Given this possibility, the role of cognitive change, including the mechanisms underlying such change, in the treatment of anxiety disorders remains unclear.

TREATMENT EFFICACY

In this section we briefly review the lierature on treatment outcome for behavioral and cognitive-behavioral interventions. We again take a broad approach to emphasize the take home point – namely, that there is little evidence for superiority of behavioral over exclusively cognitive and cognitive-behavioral interventions. Virtually all efficacious intervention for anxiety disorders includes both cognitive and exposure-based procedures, with each of these procedures involving both cognitive and exposure-like elements.

Outcome of Exposure Therapy Across the Anxiety Disorders

Numerous studies have shown that exposure therapy is efficacious in the treatment of all anxiety disorders. For instance, *in vivo* exposure to internal feared cues (i. e., bodily sensations) and agoraphobic fears is highly effective in reducing symptoms of panic disorder and agoraphobia. A meta-analysis of 55 studies showed that pre- vs. post-treatment effect sizes for panic disorder ranged from 0.79 – 1.09, whereas effect sizes for agoraphobic avoidance ranged from 1.38 – 1.48 (see Bakker, van Balkom, Spinhoven, Blaauw, & van Dyck, 1998, for a review; Westling & Öst, 1999; van Balkom et al., 1997). Moreover, imaginal exposure to stimuli such as an intrusive thoughts or images is particularly effective in the treatment of obsessive-compulsive disorder (Abramowitz, 1996; Foa, Steketee, Turner, & Fischer, 1980).

A meta-analytic review of 45 studies yielded a large pre- vs. post-treatment effect size for exposure therapy for obsessive-compulsive disorder (1.47; van Balkom et al., 1994). Similar large effect sizes were found in a very recent meta-analytic review of 13 studies for posttraumatic stress disorder, with imaginal and/or *in vivo* exposure yielding to a pre- vs. post-treatment effect size of 1.57 (Bradley, Greene, Russ, Dutra, & Westen, 2005). In vivo exposure therapy to circumscribed feared objects or situations has been found to be a effective form of treatment for specific phobias (Biran, Augusto, & Wilson, 1981; Biran & Wilson, 1981; Emmelkamp & Wessels, 1975) and social phobia (see Heimberg, 2002, for a review). Finally, virtual reality exposure therapy for some of the specific phobias (i. e., acrophobia, fear of flying, heights) has recently shown to be as effective as *in vivo* exposure (Emmelkamp et al., 2002; Rothbaum, Hodges, Anderson, Price, & Smith, 2002). Despite considerable literature attesting to the effectiveness of exposure therapy for anxiety disorders, approximately 10 to 30% of individuals do not benefit from it (Craske, 1999) and some experience a reemergence of fear and anxiety some time after having gone through successful treatment.

Outcome of Cognitive Interventions Across the Anxiety Disorders

Several researchers have compared cognitive therapy with applied relaxation in the treatment of generalized anxiety disorder (Arntz, 2003; Barlow, Rapee & Brown, 1992; Borkovec & Costello, 1993; Ost & Breitholtz, 2000). All studies tended to show immediate equivalence between the two treatments, with one study demonstrating superior outcome for cognitive therapy at 12-month follow up. Also, Butler, Fennell, Robson, and Gelder (1991) evaluated cognitive therapy for generalized anxiety disorder (Beck et al., 1985) with a version of anxiety management minus any cognitive interventions. They found cognitive therapy to be superior both immediately post-treatment and at 6-month follow up.

Other studies focused on comparing purely cognitive procedures to exposure-based treatments. For instance, Marks and colleagues (1998) compared relaxation training, cognitive, behavioral, and cognitive-behavioral treatments for PTSD. Findings suggest that there were no major differences between cognitive, behavioral and combined treatments at post-treatment and 6-month follow up. Mattick, Peters and Clarke (1989) evaluated exposure treatment, cognitive restructuring, and a combination of the two as treatments for social anxiety disorder. Results show that all three conditions resulted in roughly equal gain, with the cognitive restructuring condition showing better improvements on tests of irrational beliefs and negative self-evaluation. Similarly, Taylor and colleagues (1997), in comparing cognitive and exposure-based treatments for social anxiety, found that, in the initial sessions of a treatment, cognitive restructuring produced superior gains compared to a generic filler treatment. In a related study, van Oppen and colleagues (1995) compared exposure/response prevention to a purely cognitive intervention for the treatment of obsessive-compulsive disorder. Clients received six session of each, followed by ten sessions of combined treatment. Results suggested that both interventions lead to initial symptom reduction, with reduction continuing throughout the combined treatment portion of the study.

Findings appear to suggest equivalence between cognitive and exposure-based treatments, indicating that adding cognitive components to exposure treatments provides little incremental utility. However, available outcome literature for cognitive therapy may be difficult to interpret as many studies investigating interventions derived from cognitive therapy have failed to explicitly disentangle these interventions from traditional behavioral interventions (i.e., exposure therapy). A rather stark example is the use of behavioral tests of negative cognitions, which require clients to expose themselves to their feared situations, including distressing

thoughts, memories, and the like (e.g., Clark et al., 1999). Also, the simple process of examining maladaptive cognitions in session may function as imaginal exposure.

It is important to note here that cognitive theory views exposure to fearful events as having the fundamental purpose of allowing individuals an opportunity to identify and dispute their cognitive distortions. Though exposure interventions allow for new corrective emotional learning via extinction of excessive fear and anxiety, the therapeutic process of change from a cognitive theory standpoint occurs via changes in cognition that come about through cognitive restructuring. Yet, at a conceptual level, it is exceedingly difficult to evaluate procedures specific to cognitive theory in such investigations, as all could be conceptualized as involving exposure elements. The same is true of exposure-based procedures, wherein extinction and approach behavior likely involves thinking in verbally able organisms. Still, a handful of studies have carefully tested the contribution of purely cognitive interventions and none have shown that these interventions are superior to exposure-based behavioral interventions (e.g., Emmelkamp & Mersch, 1982; Emmelkamp, van Der Helm, van Zanten, & Plochg, 1980).

Efficacy of Combined Cognitive-Behavioral Treatments

Cognitive-behavior therapy (CBT) refers to the integration of both behavioral and cognitive intervention strategies in manualized treatment protocols. Such integrated treatment packages exist for each of the DSM defined anxiety disorders. While cognitive and behavioral intervention components involve direct attempts to reduce maladaptive thoughts, emotions, and behavior that characterize anxiety-related disorders, each differ in theory, therapeutic strategies of change, and targeted processes.

With regard to targeted processes, behavioral interventions focus on alleviating excessive fear and anxiety, including associated avoidance and escape behavior, by targeting them directly via exposure-based strategies. The added cognitive components target problematic threat appraisals, beliefs, and thinking patterns that are thought to exacerbate and maintain anxiety problems (Brewin, 1996). Collectively, integrated CBT packages teach anxious individuals behavioral and cognitive competencies needed to function more adaptively in their lives. More specifically, the most common therapeutic techniques utilized in such interventions involve exposure to the feared stimuli in order to reverse patterns of escape and avoidance, and cognitive restructuring in order to alter irrational thoughts and beliefs (Heimberg, 2002).

Currently, CBT is the gold standard for the treatment of anxiety disorders. Indeed, CBT has been judged to meet empirical standards of demonstrated efficacy for panic disorder, agoraphobia, social phobia, generalized anxiety disorder, obsessive-compulsive disorder, and specific phobia (Chambless & Ollendick, 2000). Some widely used CBT packages for anxiety disorders include *Master of your Anxiety and Panic* (MAP-3; Barlow & Craske, 2000), *Cognitive-Behavioral Group Treatment for Social Phobia* (CBGT; Heimberg et al., 1990), and *Mastery of your Anxiety and Worry* for generalized anxiety disorder (MAW; Craske Barlow, & O'Leary, 1992). These treatment packages typically contain a combination of exposure-based and more explicitly cognitive strategies.

Across the anxiety disorders, CBT tends to yield relatively large pre- vs. post-treatment effect sizes. For instance, CBT for panic disorder (i.e., involving interoceptive and situational exposure, cognitive restructuring, and/or relaxation) has yielded a mean effect size (ES) of 0.68 in a meta-analysis of 19 studies (Gould, Otto, & Pollack, 1995). A meta-analytic review of 16 studies comparing the efficacy of cognitive-behavioral treatment (i.e., exposure plus cognitive restructuring) with exposure and cognitive restructuring alone for social phobia suggested that exposure therapy either alone (*ES* = 0.89) or in combination with cognitive restructuring (*ES* =

0.80) is somewhat more effective than cognitive restructuring alone (*ES* = 0.60; Gould, Buckminster, Pollack, Oto, & Yap, 1997). With respect to generalized anxiety disorder, cognitve-behavioral treatment has been found to be more effective than behavioral or cognitive interventions with effect sizes in 11 studies ranging from 0.91- 1.01 (Borkovec & Whisman, 1996; Butler et al., 1991; Gould, Otto, Pollack, & Yap, 1997). Similarly, CBT and exposure and response prevention (ERP) has demonstrated efficacy in the treatment for obsessive-compulsive disorder, with a recent meta analysis showing mean effect sizes ranging from 1.39 for CBT (*n* = 4) to 1.53 for ERP (*n* = 16; see Abramowitz, Foa, & Franklin, 2002; Eddy, Dutra, Bradley, & Westen, 2004). Finally, combined behavioral and cognitive treatment procedures (i.e., CBT: exposure, cognitive restructuring, management skills) for posttraumatic stress disorder has been shown to be effective (*ES* = 1.27; van Etten & Taylor, 1998). The overwhelming weight of evidence here suggests that CBT works for a range of anxiety disorders.

SUMMARY AND EVALUATION: TOWARD A NEW PERSPECTIVE

Over the last 40 years, behavior therapy has led the development of empirically derived and time-limited psychological interventions to assist those suffering from anxiety and fear-related problems. Of these interventions, several randomized, controlled clinical trials have established the efficacy of cognitive-behavioral therapies and have shown that CBT is effective regardless of the anxiety disorder. Most of these interventions now exist in the form of manuals and have been remarkably successful. Yet, all is not well.

Though behavioral and cognitive-behavioral therapies are the treatments of choice for anxiety disorders (Barlow, 2002), there is a growing concensus that more can be done and need to be done to push the efficacy ceiling. Despite some impressive short-term gains, we are still far from producing overwhelming success rates in terms of long-term recovery and relapse prevention. Cognitive-behavioral therapies are still far from curative. A significant number of anxiety sufferers fail to respond to cognitive-behavior therapies, and more people than we'd like to admit never even start treatment once they hear what it involves (Becker & Zayfert, 2001). Many others will drop out before completing treatment. Of those that complete treatment, many will ultimately relapse and require additional treatment. It is simply not the case that we have reached the efficacy ceiling with regard to cognitive-behavior therapies for anxiety disorders (Barlow, Allen, Choate, 2004; Foa & Emmelkamp, 1983; Foa & Kozak, 1997a). Far from it. We can and should do better. In fact, we must do better.

Meeting this challenge will require rethinking some of the basic assumptions guiding our views of anxiety-related problems and their treatment. This is precisely what is happening now with newer third generation behavior therapies that seem to be focusing on common processes that transform normal fear and anxiety into the life shattering problems that characterize the anxiety disorders. The remainder of this chapter provides some background for this work and a new perspective.

Critical Evaluation and Evolution

For better or for worse, cognitive-behavior therapies have become the treatments of choice for the anxiety disorders. Such treatments focus heavily on symptom alleviation as a therapeutic goal, are matched to specific DSM defined anxiety disorders, and are set within a mastery and control framework. Such treatments imply several things.

First, they suggest that the "symptoms" are the problem. This perspective, by the way, is similar to how clients tend to view their problems (at least early on in therapy). In this sense, CBT therapists and clients appear to be in agreement that symptoms of anxiety cause impairment

and suffering. If this were the whole story, then an obvious treatment strategy would be to target the symptoms. Yet there is usually a more important life to be lived behind the symptoms. It is this "living" that is of deep concern to clients, as it is to most human beings. In the past, traditional CBT has not paid sufficient attention to this living and, as a consequence, may have missed important aspects of a person's life situation. It is for this reason that acceptance-based approaches put living front and center of the therapeutic stage.

Second, we must provide a more process-oriented answer to the question "what are the so-called symptoms of anxiety a sign of?" If we refer to the problem responses that our clients seek treatment for as symptoms of anxiety, then we must explain what the disorder is. Calling the disorder "anxiety" sounds reasonable, but is not a viable solution. A problem response (symptom) cannot define a disorder and be a symptom of the disorder at the same time (Williams, 2004). The alternative we suggest in this chapter is to go after the processes that turn normal anxiety into the often life-shattering problems we refer to as anxiety disorders and then target those processes during treatment.

Third, the strategy of matching treatments to different anxiety disorders suggests that the anxiety disorders are truly distinct, and thus warrant different approaches for each. Such differences are obvious at the phenomenological level, particularly if one focuses on events that elicit fear and anxiety across the anxiety disorders. This issue alone is interesting itself and certainly deserves more comment than space would allow for here. Most therapists, however, are quick to point out the high degree of functional and symptom overlap across the presumably different anxiety disorders. For instance, although panic attacks occur most frequently in persons with PD, they also can and do occur in persons with all other anxiety disorders (Barlow, 2002). The fact that similar treatment technologies work for different anxiety disorders (e.g., exposure, cognitive restructuring, relaxation) is a further indication that the disorders are more similar than they have been made out to be. Most importantly, the tendency to avoid and escape from fear and anxiety is characteristic of just about every individual diagnosed with an anxiety-related disorder (see Salters-Pedneault, Tull, & Roemer, 2004, for a review). The specific types of escape and avoidance behavior may differ at a phenomenological level but the basic function of those behaviors is the same: they serve to reduce fear and anxiety and get the person out of the situation where they experience fear and anxiety.

There is also considerable overlap between anxiety disorders and major mood disorders (see Mineka, Watson, & Clark, 1998, for a review). For instance, Barlow and colleagues (2004) report that 55% of patients with a principal anxiety or mood disorder had at least one other additional anxiety or depressive disorder at the time of assessment. In the majority of cases of coexisting anxiety and depression, anxiety disorders preceded rather than followed the onset of mood disorders. The observable overlapping features of the various anxiety disorders, as well as the large co-occurrence of anxiety and mood disorders, point to a more basic fundamental and functional overlap at the process level that is at the heart of all anxiety disorders: rigid and excessive attempts to avoid experiencing anxiety and unpleasant private content. It is interesting that this perspective has actually been gaining ground in CBT, too. For instance, David Barlow has recently proposed a unified treatment protocol and modular approach directed at the core features of all anxiety and related emotional disorders with the goal of condensing the existing various versions of CBT to one strategic approach that targets those core features (Barlow, Allen, & Choate, 2004). In subsequent sections, we present empirical support for the powerful and self-defeating impact of avoiding negative affect as the core pathological process that fuels all anxiety disorders.

Finally, virtually all cognitive-behavioral treatments are cast within a mastery and symptom control framework. The chief therapeutic goal of such interventions is to teach clients more effective ways to gain control over their anxiety, fear, and related symptoms. Again, this is precisely what clients have come to expect from therapy, and a posture that most clients are all too familiar with by the time they enter therapy. That is, clients have tried this or that to master and control their anxiety and fear, and often without much success. Now, they expect therapists to provide them with new, "better," gold-plated strategies to do essentially more of the same, hoping that such strategies will be more workable than those they have tried in the past. As we will suggest, this mastery and control agenda is unnecessary, and may even be counterproductive. Thoughts and emotions need not be managed to live a valued and meaningful life. Human experience tells us as much. Management and control of our internal private world is not a necessary prerequisite for living a meaningful life.

If this all sounds like a slam against cognitive-behavior therapies, it is not. Rather, our intent is to suggest ways that we can improve upon existing CBT interventions while retaining those components of CBT that have clearly proven effective such as exposure exercises and strategies to counteract avoidance behavior. Helping clients to improve their life situation, however, may require that we rethink the mastery and control change agenda within standard cognitive-behavioral therapies for anxiety disorders.

Toward a New Behavioral Perspective

The roots of exposure-based interventions are firmly planted in fear learning research and therapy. Yet, numerous criticisms have been raised about the clinical relevance of fear conditioning research as a model of anxiety disorders. Most of these have followed from an oversimplified view of conditioning preparations and processes. Our intent here is not to redress all of these criticisms (e.g., Marks, 1981; Menzies & Clarke, 1995; Rachman, 1977, 1991), as none of them hold up in light of contemporary learning theory (Bouton, et al., 2001; Forsyth & Eifert, 1996a, 1996b, 1998a, 1998b; Mineka & Zinbarg, 1996). That is, all but one.

As we see it, the chief challenge facing Pavlovian conditioning research is in explaining how an entirely functional and ubiquitous learning process (i.e., conditioning) coupled with equally functional and ubiquitous emotional responses (i.e., fear and anxiety) would send some individuals down the path to an anxiety disorder and not others (cf. Forsyth, et al., 2005). This issue is a bit different than asking whether individual differences moderate fear learning (Eysenck, 1967; 1976; Mineka & Zinbarg, 1996), including events occurring before, during, and following conditioning (e.g., latent inhibition, context). Rather, the question here is about how conditioning itself, when placed in the context of fear, would yield an anxiety disorder and not simply conditioned fear, anxiety, or avoidance that most humans have experienced at some point in their lives. Put simply, what makes fear conditioning helpful in some contexts and problematic in others?

When fear is evoked, for instance, the typical acute consequence is disruption and narrowing of ongoing behavior. Such disruptions function to ready organisms to take immediate action to prepare for, and subsequently to escape from or avoid, potential sources of threat. It makes sense to learn to fear stimuli that have been associated with aversive consequences, and particularly aversive emotional states, even when people are exposed to contingencies between arbitrary stimuli and aversive UCSs. In fact, evolutionarily it would be exceedingly costly for organisms to fail to show conditioned fear and hence fail to learn from aversive experiences. These actions function to mobilize all mammals to take appropriate action in response to threat or danger, and thus contribute in some sense to survival. Following aversive experiences, most

mammals will actively avoid exposing themselves to stimuli that predict aversive responses, in part, because it makes adaptive sense to do so. Our challenge then is to explain the parameters and processes that transform such behavior from being adaptive in some contexts to maladaptive or dysfunctional in others.

What makes fear learning a problem? Classical fear conditioning emerged as a model of anxiety disorders largely because of Watson and Rayner's (1920) dramatic demonstration of fear acquisition in Little Albert. The correspondence between the behavior of Albert and the phobias and other anxiety problems was striking and led to the recognition of a process by which fear could be acquired. Yet, the recognition of a process should not be confused with saying that fear learning itself is problematic, or that fear learning is an adequate analog of phobias or anxiety disorders. Under the circumstances, Albert behaved in accord with the history he was provided. There were no costs associated with his conditioned fear or his avoidant behavior. By contrast, fear learning and avoidance across the anxiety disorders are typically associated with costs, in large part, because such behavior is set within a context of powerful competing approach contingencies (see Hayes, 1976). Such competing contingencies are typically reflected in the reasons anxious clients seek treatment (e.g., "My fear of driving is driving my husband crazy," or "I just don't like feeling anxious," or "I can't drive to work because I might have a panic attack").

This dual-component view suggests that fear learning becomes problematic only when it (a) removes access to reinforcing events, and/or (b) puts the individual in contact with aversive events. The resulting avoidance, in turn, becomes disruptive when competing contingencies supporting (a) and/or (b) are present. Thus, a pedestrian who hears the blare of a horn of an oncoming car and jumps out of the way would likely experience fear, some conditioning, and clearly demonstrates avoidance. Yet, this person would not be considered phobic, in part, because there are few or no approach contingencies in this situation (Costello, 1970; Hayes, 1976). In fact, approach in this context (running into the street) would be extremely punishing. This situation is analogous to animal avoidance learning paradigms wherein a signal is followed by the emission of an avoidance response or else the onset of an aversive stimulus. Such behaviors, as Hayes (1976) points out, are not phobic because there is no competing approach element in the situation. Though etiologically all phobic behavior is avoidance behavior, it is not true that all avoidance behavior is phobic behavior (see Hayes, 1976), nor is it true that all fear learning is phobic learning (cf. Forsyth et al., 2005).

From a more functional process-oriented perspective, classical fear conditioning is recognized as an enormously powerful means of altering the functions of a range of events and directing behavior as a consequence. Yet, such learning cannot account for the development of an anxiety disorder except under the most extreme and unusual circumstances. If there are no strong approach contingencies in the situation (i.e., approach-avoidance conflict), then fear learning is just fear learning and avoidance is simply avoidance, not a phobia or an anxiety disorder. The implications of this account have yet to be fully tested in human fear conditioning analogs, but have been demonstrated reliably in animal research (e.g., see Hayes, Lattal, & Myerson, 1979). Such tests in humans present a challenge, in part, because humans can expand the range and scope of approach-avoidance contingencies, including classical conditioning processes, via language and verbal behavior.

Verbal processes and disordered fear. Humans can respond to approach-avoidance contingencies verbally and symbolically without being confronted with the actual contingencies directly. Thus, a person who learns that fear is bad and must be managed before being able to do

important tasks (e.g., go to work, attend a child's play; all approach contingencies) may, in turn, struggle to manage the emotional response first in order to engage in effective actions second. This type of learning can take approach-avoidance conflict to a new level of complexity, and requires consideration of what humans do to manage the experience and expression of emotions. As we will indicate, this is a key difference between nonhuman animals and humans and one that is accounted for, in large part, by social contingencies and the capacity for humans to engage in complex verbally-mediated relations, including rule-governed verbal behavior. Such capacities make it possible for humans to engage in self and emotion regulatory actions that are not possible to the same degree in nonverbal organisms, including primates.

Despite ample evidence (e.g. Cook & Mineka, 1991; Suomi, 1999) that primates experience and express pain and chronic states of anxious arousal, there is no indication that they *suffer about the experience of having pain and anxiety*. For instance, rhesus monkeys exposed to uncontrollable and unpredictable aversive stimulation experience alarm responses followed by long-term anxious arousal. Primate will also learn to avoid the source and context of aversive stimulation, but as best we can tell, they do not act deliberately and purposefully to regulate their emotional experience. Humans, by contrast, can and do suffer about their own emotional pain and histories by responding to conditioned responses with evaluative verbal behavior and thinking (e.g., "God, this is awful," "I'm going to pass out") and by engaging in efforts to suppress, avoid, or escape from their emotional pain and related thoughts. Thus, humans can become fearful or fear, depressed about anxiety, worried about the future, agonize about the past, and struggle to avoid and escape from unpleasant thoughts, images, sensations, feelings, behavioral tendencies, and the circumstances that have evoked them or those that *may* evoke them in the future. The capacity of language, coupled with powerful social contingencies regarding the experience and expression of emotion, make this possible.

The experience and expression of emotion as well as the implications of regulating emotional experience for success and personal happiness (Gross, 1998; Hayes et al., 1999) are largely shaped by social and cultural conventions and contact with other human beings. Much of this learning is heavily dependent on complex forms of relational learning that is entailed in language and verbal-symbolic behavior (Forsyth, 2000; Forsyth et al., 2005; Forsyth & Eifert, 1996b; Friman, Hayes, & Wilson, 1998). Language serves important symbolic functions by providing humans with emotional experiences without exposure to the actual physical stimuli or events that ordinarily elicit those responses (Staats & Eifert, 1990). For instance, suppose a person has learned to associate fear with "danger," unpredictability," and "sudden quick movements," and actions such as "running away." Suppose also that this person has no previous negative history with snakes, but hears someone say that snakes make sudden quick movements. Though this person has not been told to be fearful of snakes, they may now quickly derive that snakes are something to be afraid of without explicit reinforcement for doing so. They may also derive that snakes are unpredictable and dangerous too. Though such relations may seem intuitively obvious, the learning that gives rise to such relational capacities is not.

Such verbal-relational tendencies are socialized and emerge by about the age of two and are fundamentally built into human language and cognition (for a more detailed account of relational learning processes, see Hayes, Barnes-Holmes, & Roche, 2001). Such learning begins with an extensive history of reinforcement for relating many stimuli in many different ways based largely on their formal stimulus properties (e.g., beachball is a ball, a basketball is a ball), and thereafter through more indirect relations (e.g., spoken word "ball" is the same as written word ball and other physical examples of balls and not balls). Such a history, in turn, makes it

possible for humans to relate other, novel stimuli in numerous ways without being taught to do so (see Blackledge, 2003). Thus, the person described in the example earlier may respond with fear, run away, and may avoid going back into the woods in the future after hearing someone say "I saw a snake in the woods once." The woods also may become dangerous, unpredictable, and a place that evokes fear. Such learning, in this example, was established indirectly and almost entirely via arbitrary verbal relations. Arbitrary here simply means that the new relations are not dependent on the stimulus properties of the relata (e.g., the woods are not more or less snaky), but rather established by social convention.

Language entangles humans in a struggle with emotions. The language-based capacity for humans to evaluate, and respond relationally to their own evaluations, thoughts, and feelings with more evaluations, also makes it possible for humans to get entangled in a struggle with their own emotions while acting not to have them (Forsyth et al., 2005). With the above example, one can quite literally try to run away from the experience of fear and a host of events with which it might be arbitrarily related without being taught to do so. That is, the experience of fear can now be established via derived relations with many other events, including those that entail strong approach contingencies. Indeed, several studies have shown transfer of fear and avoidance functions, including many other stimulus functions (e.g., discriminative, approach), following a history of learning relations between arbitrary stimuli (e.g., A = B = C; see Augustson & Dougher, 1997; Dougher et al., 1994). What is interesting about this work is that it shows how language can establish relations between events that are not taught directly. Thus, if painful shock is associated with C, it is likely that A and B will also evoke conditioned emotional responses. This has been demonstrated not only with fear, but also avoidance, numerous other functions (e.g., sexual arousal), and with classes involving more than three members (see Hayes, Barnes-Holmes, & Roche, 2001, for a detailed account).

Collectively, this work points to the kinds of histories that may transform the experience of a sudden quick movement of the heart into "this is dangerous" and "I might be dying" without direct contact with the aversive contingency (i.e., death). It also points to how language may function to fuse verbal processes with the formal properties of private and public events. When such fusion occurs, a thought is no longer just a thought, and a word is no longer just a sound; rather, actual events can become fused with the words used to describe them, and thus humans can respond to words about some event as if we were responding to the actual event. Consequently, humans can establish contingencies almost entirely through verbal processes (e.g., don't touch the hot stove or you'll get burned) and can respond to those verbal constructions even when the faced with powerful contradictory natural contingencies (e.g., "I might get 'burned' if I trust that person," meaning hurt).

Though there is evidence that nonverbal organisms can learn relational responses based on the formal properties of relata (e.g., pick a larger object when presented with multiple different objects of varying size and shape), they cannot make more complex relational responses (e.g., pick the *scariest* object when presented with a picture of the moon, a tree, and a small wasp). A nonverbal animal would not be able to respond above chance, whereas a verbally sophisticated human would likely chose the wasp. Here "scary" is not a formal stimulus property involving any of the five senses, but rather a stimulus property that has been given arbitrary significance by the social verbal community (cf. Blackledge, 2003; Hayes et al., 2001). One outcome of this process is the tendency to regulate aversive emotional experience so as to suppress, control, avoid, or escape from it. Another is that language processes can greatly expand the scope of limited fear learning experiences (see earlier example). Both point to the powerful

role of socially-mediated contingencies in shaping the experience and expression of emotion. When such contingencies are juxtaposed with classical conditioning contingencies, otherwise adaptive fear learning processes can lead some individuals down the path of developing an anxiety disorder (Forsyth et al., 2005). It is to a discussion of this view that we now turn.

EMOTION REGULATION AND THE ANXIETY DISORDERS

There are several accounts to explain the shift from normal to clinically disordered fear. Most accounts share two notions. First, fear and anxiety are somehow dysregulated, such that either emotional response occurs too frequently, too intensely, or for too long. Second, anxiety and fear are evoked by cues that do not demand such responses. That is, fear and anxiety are evoked in the absence of real threat. Thus, the combination of dysregulated emotion occurring in contexts that do not call for an anxious response may result in wide ranging functional impairment that cognitive-behavior therapies for anxiety disorders target via some combination of cognitive restructuring and exposure-based strategies (Barlow, 2002; Barlow et al., 2004).

The Nature of Emotion Regulation

Emotion regulation simply refers to a heterogeneous set of actions that are designed to influence "which emotions we have, when we have them, and how we experience and express them" (Gross, 2002, p. 282; see also Gross, 1998). Such actions include, but are not limited to, phenomena captured by terms such as reappraisal, distraction, avoidance, escape, suppression, emotion and problem-focused coping, and use of substances to enhance or blunt emotional experience. Each of these domains subsumes numerous actions that can be applied to both positive and negative emotional states (Parrott, 1993). In the context of aversive emotional states, emotion regulatory processes share a common functional goal, namely to avoid or minimize the frequency, intensity, duration, or situational occurrence of internal feeling states, associated thoughts, and physiological processes (e.g., fear and anxiety). Some regulatory processes may be relatively autonomic or habitual occurring in or outside of awareness (e.g., selective attention), whereas others may be more purposeful or deliberate (e.g., blame, rumination, suppression, avoidance). Most processes, however, can be characterized by actions (i.e., automatic or controlled) that aim to alter the form or frequency of events that may precede an emotional response, or the consequences of emotional responding, including the very experience of the emotional response itself. The former has been described as antecedent-focused emotion regulation, whereas the later refers to response-focused emotion regulation.

The emerging field of emotion regulation research and theory aims to bring together numerous processes that are involved in the experience, expression, and modulation of emotion, including the positive and negative consequences of emotion regulation itself (e.g., achievement of goals, restriction in life functioning). That is, emotion regulation is best thought of as a broad term that characterizes a range of well-established psychological phenomena that have been shown to influence the experience and expression of emotion. Though emotion regulation is itself not a dysfunctional process, it can become dysfunctional when the emotions concerned cannot and need not be regulated, and when the very act of emotion regulation gets in the way of meaningful life activities (i.e., regulation that competes with powerful approach contingencies; see Hayes, 1976). It is for these and other reasons that the very topic of emotion regulation is gaining currency in psychopathology research (Barlow et al., 2004; Eifert & Forsyth, 2005) and mental health care more generally (Blackledge & Hayes, 2001; Gross & Muñoz, 1995).

Our consensual model of emotion regulation in a fear learning context (see Forsyth et al., in press, for details) suggests that humans may regulate the antecedents and consequences of

emotions. Antecedents, in the case of anxiety disorders, may include situations where anxiety and fear are likely to occur, bodily and environmental cues that tend to evoke such reactions, whether emotionally relevant information is attended to, and how such information is evaluated or appraised (e.g., "this isn't so bad," or "I can't get through this"). In Pavlovian conditioning terms, the relevant antecedents would be conditional stimuli or CSs and quite possibly unconditioned stimuli or UCSs and the contexts where both may occur. Strategies used to regulate emotions on the front end are important precisely because how one responds to emotional inputs, and particularly the verbal evaluation of those inputs (i.e., this is dangerous, awful, harmful), affect the emotional consequences that may follow. Thus, escalation of the emotional sequence can be attenuated or avoided altogether depending on how one manages the antecedents that may evoke or occasion emotional experience.

Once the emotion occurs, regulation efforts tend to focus on the intensity, duration, and general quality of the emotional response and its consequences. Such response-focused regulation strategies may involve taking a break, relaxation, deep breathing, distraction, affiliating with others, or doing something pleasant. There is nothing disordered about such strategies when applied in a context sensitive and flexible manner. Problems may arise when persons make rigid efforts to down-regulate the cognitive, physiological, or behavioral components of negative emotions when such efforts are unnecessary to engage competing approach contingencies. Such down regulation strategies are often subtle and idiosyncratic in persons suffering from anxiety disorders, and usually take the form of suppression, control, avoidance, or escape (Barlow, 2002; Barlow et al., 2004).

Healthy and Unhealthy Varieties of Emotion Regulation

Historically the field of emotion regulation research and theory has been agnostic with regard to the positive and negative consequences of emotion regulation strategies for psychological health and wellness. Increasingly, however, we are learning that certain forms of emotion regulation may be healthier than others, and that some may produce human suffering. We briefly summarize findings from this literature that are relevant to a better understanding of how emotion regulation may make fear and fear learning problematic.

Antecedent-focused regulation. Antecedent forms of emotion regulation characterize actions occurring before emotional response tendencies are fully engaged. The most studied strategy, reappraisal, refers to verbal-linguistic actions that change the meaning of an emotion-eliciting situation for better or worse (Lazarus & Alfert, 1964). Research suggests that positive reappraisal is a flexible and effective means of minimizing negative impact of an aversive event (Gross, 1998, 2002). This strategy subsumes numerous actions (e.g., sense making, acceptance) with the goal of reframing an emotion-eliciting situation in less emotional terms. Less functional antecedent strategies include avoidance, distraction, suppression, and escape.

Studies suggest that positive reappraisal strategies are less likely to be used by depressed and anxious persons relative to healthy controls (see Garnefski et al., 2002), and that infrequent use of such strategies in healthy adolescents is associated with more depressive and anxious symptoms (Garnefski & Spinhoven, 2001). Others have shown that reappraisal is less emotionally and cognitively costly relative to suppression and avoidance, and that chronic use of suppression impairs memory for emotional information even after controlling for neuroticism and social desirability (e.g., see Richards & Gross, 1999, 2000). Ochsner and colleagues (2002, 2004) showed that reappraisal, like other emotion regulatory strategies, draws heavily upon verbal linguistic processes and that these processes may up or down regulate amygdala activity. This circuitry, in turn, is strongly implicated in fear learning (e.g., LeDoux, 2000).

Response and consequence-focused regulation. Studies have demonstrated that suppression of aversive emotions does not provide relief from the psychological experience of that emotion. In fact, just the opposite tends to occur: the emotion becomes stronger and more salient, resulting in increased sympathetic nervous system activity (e.g., cardiovascular and electrodermal response; Gross & Levenson, 1997) and a range of undesired psychological content in the suppressor as well as those interacting with him or her (see Butler & Gross, 2004, for a review).

Other research suggests that attempts to suppress and control unwanted thoughts and feelings can result in *more* unwanted thoughts and emotions (Wegner, 1994; see also Purdon, 1999, for a review). Moreover, emotion suppression has been shown to contribute to suffering and pain (Hayes et al., 1999), distress and restriction in life functioning (Marx & Sloan, 2002), diminished contact with meaningful and valued life activities, and poorer overall quality of life (Hayes, 2004a; Hayes, Wilson, Gifford, Follette, & Strosahl, 1996; Hayes et al., 2004). Individuals who chronically engage in suppression also tend to report more negative experiences and fewer positive ones (Gross & John, 2003). Such relations appear to be completely mediated by inauthenticity (John & Gross, 2004); a construct similar to lack of self-acceptance (Hayes et al., 1999).

The emerging consensus here is that response-focused emotion regulation requires considerable effort, only works to a point, and that it is counterproductive when the emotions are intense and highly aversive. Thus, reacting to our own reactions can actually amplify those reactions in a vicious self-perpetuating cycle, resulting in an increase of the very emotion that is undesired, and particularly in contexts or situations where the regulation of emotion would be most desired (Craske, Miller, Rotunda, & Barlow, 1990).

The importance of flexibility. Functional accounts of emotion regulation and other behavioral processes demand attention to contextual factors. In this view, the utility of emotion regulation depends on whether it works or not to achieve desired outcomes, and whether it can be flexibly applied depending on the context. That is, because emotion regulation characterizes socially acquired behaviors (not immutable traits) it ought to be sensitive to contextual determinants. For instance, positive reappraisal seems like a useful strategy to defuse or minimize the impact of an aversive emotion compared to avoidance, suppression, and control. Yet, this does not mean that positive reappraisal should be uniformly applied where it does not work. For example, it would not seem advantageous for a person to remain in a highly aversive situation using positive reappraisal when other behavioral options are clearly more viable. Flexibility, or the ability to discriminate between a range of stimuli in and outside a context, seems crucial in any account of the functional utility of emotion regulation strategies in a fear learning context. In fact, the failure of discrimination – or the tendency to regulate emotions indiscriminately or chronically in a trait like fashion – is emerging as a core theme that appears to distinguish problematic from more functional forms of emotion regulation and poorer long-term adjustment (Bonanno et al., 2004; John & Gross, 2004).

Language processes can facilitate or interfere with discrimination and contingency shaped responding (see Hayes, 2004b, for a detailed account). For instance, rules can make learning contingencies more rapid, or they can interfere with learning contingency relations (e.g., Hayes et al., 1986). The behavioral account of human inflexibility has focused on how language processes diminish contact with approach contingencies by establishing patterns of self and emotion regulation as prerequisites for effective action (Zettle & Hayes, 1982). Experiential avoidance, a recent term used to describe this tendency, refers to behaviors to alter the frequency,

duration, or form of unwanted private events (i.e., thoughts, feelings, and physical sensations) and the cues and situations that occasion them (Hayes et al., 1999). This is a technical definition as much as it is a functional definition. Experiential avoidance characterizes a set of actions that tend to be more rule-governed than contingency shaped. Thus, it yields behaviors that appear more rigid than circumstances warrant.

Because experiential avoidance entails the very same set of processes that can make emotion and thought regulation problematic, it is thought to contribute to numerous problems associated with unwanted psychological and emotional content (Hayes et al., 1996). In fact, persons so predisposed will likely experience approach-avoidance conflicts across numerous situations for the simple reason that experiential avoidance is rigidly and inflexibly applied and is thus pitted up against numerous life contingencies (verbally and nonverbally derived) that demand approach (e.g., going to work, running errands, taking a vacation, being with people).

For instance, persons who use chronic suppression tend to report feeling a sense of incongruence between the private and outer behavior, fear being accepted by others, and thus use suppression in relationships they care about and are afraid to lose (see John & Gross, 2004, for a review). This example illustrates how emotion regulation interfaces with several verbally derived approach-avoidance conflicts. It also suggests how this tendency may be a potentially self-destructive process that is associated with significant costs and a range of negative outcomes, including functional impairment in interpersonal, social, and occupational domains, overall poorer quality of life (Gross, 1998; Hayes et al., 1996; Pennebaker & Beall, 1986; Quilty et al., 2003), and even illness and greater mortality risk (Denollet et al., 1996).

The question, then, is why do we avoid feelings and thoughts as if they were the enemy? From an emotion regulation perspective social learning creates a context where forms of experiential avoidance and non-acceptance can thrive (Hayes et al., 1999). Emotion regulation is used as evidence of maturity, emotional stability, health and wellness, success, fulfillment, and happiness. We typically do not question what life might be like if unpleasant emotions and thoughts were treated simply as events to be experienced as part of being fully human, and not as events that must be managed and controlled (cf. Blackledge & Hayes, 2001). We do not question the cultural mandate that equates failures of emotional regulation with suffering and misery and connects "positive" thoughts and feelings with an ability to engage life to its fullest. In this cultural context, anxious thoughts and feelings become obstacles to living and the achievement of valued goals. They are reasonable justifications for inaction and quite often fused with a sense of self worth (e.g., "I'm not good enough," "I am broken"). It follows that unwanted feelings and thoughts must be managed and controlled (e.g., "I need to be fixed before I can do what matters to me"), even at significant cost to the individual.

Paradoxically, the first step toward healthy emotional regulation may involve fostering greater discrimination and less rule-governed behavior, particularly as applied to regulating unwanted emotional experiences. Evidence suggest that this stance puts humans (and most nonverbal organisms) in a much better position to exert control where they have it, namely, in responding to natural contingencies. We expand on this below, by showing how experiential avoidance may function to maintain disordered experiences of anxiety and fear, and serve as an experiential risk factor for the development and maintenance of anxiety disorders.

Experiential Avoidance: A Learned and Potentially Toxic Form of Emotion Regulation

Experiential avoidance is thought to function as a core psychological diathesis—a way of relating with oneself and the world—underlying the development and maintenance of anxiety disorders and several other forms of psychopathology (Blackledge & Hayes, 2001; Hayes et al.,

1996; Hayes & Wilson, 1993, 1994). It is a process related to how we go about influencing the emotions we have, when we have them, and how we experience and express them. As such, experiential avoidance is best described as an overarching emotion regulation strategy (see Gross, 1998) that differs from largely inherited biological individual differences that may make persons more vulnerable to developing an anxiety disorder (e.g., an overly active behavioral inhibition system, Gray, 1990; temperament, Kagan, 1989; neuroticism, Eysenck, 1967; Eysenck & Rachman, 1965).

Though Gray (1990) and Kagan and Snidman (1999) readily acknowledge the importance of environmental variation in activating and modulating the influence of behavioral inhibition and temperament, they also emphasize the strong heritable components and identified a number of associated brain structures and neurophysiological correlates (see Fox et al., 2005, for a recent review). Neuroticism is likewise thought of as an important individual difference predisposition – a proxy for biological dysregulation – that covaries with the tendency to be more or less emotionally reactive (Eysenck, 1967; Flint, 2004; Gross, Sutton, & Kelelaar, 1998; Larsen & Kelelaar, 1991; Tellegen, 1985). Such tendencies describe emotionality, whereas emotion regulation describes how and why emotions direct or disrupt a range of psychological, physiological, and sociobehavioral processes (cf. Blair, Denham, Kochanoff, & Whipple, 2004).

Temperament and other biological individual differences are clearly important in conferring risk for anxiety pathology. Yet, it is important to recognize that the tendency to be more or less emotional is not necessarily problematic, unless one is willing to claim that emotions are somehow problematic. Indeed, the tendency to regulate emotions is only modestly related with baseline individual difference domains such as neuroticism (e.g., $r = .03$; see Gross & John, 2003) and extraversion (John & Srivastava, 1999). Such weak relations suggest that the tendency to suppress, and to engage in experiential avoidance more generally, does not occur simply because persons experience more negative affect or negative emotions that need to be regulated. Estimates of the additive and non-additive heritability of neuroticism are low and comparable to other complex human traits (27-31% and 14-17%, respectively; see Flint, 2004, for a review). Nonetheless, it remains to be seen whether temperamental factors (e.g., neuroticism, behavioral inhibition) interface with (a) contingencies that help establish less functional forms of emotion regulation, such as a rigid use of avoidance-oriented coping strategies when faced with aversive life events (see Leen-Feldner, Zvolensky, Feldner, & Lejuez, 2004), and (b) concomitant strong approach contingencies that may make emotion and its regulation problematic.

Evidence supporting experiential avoidance as a toxic diathesis. To show that emotional avoidance functions as a behavioral diathesis and risk factor for anxiety-related pathology, it is important to demonstrate that this predisposition functions to exacerbate aversive emotional responding in individuals with no known history of psychopathology. Consistent with this view, we have shown that greater predispositions toward emotional avoidance (as assessed using the Acceptance and Action Questionnaire; Hayes et al., 2004), including the deliberate application of instructed emotion regulation strategies (i.e., emotion suppression), results in more acute emotional distress, but not greater autonomic reactivity (Feldner, Zvolensky, Eifert, & Spira, 2003). This study is important, for it is the first to show that emotional avoidance and emotion regulation strategies potentiate experimentally induced acute episodes of emotional distress using panicogenic inhalations of 20% CO_2-enriched air. Most notably, such effects were shown in healthy individuals with no known psychopathology.

We have since replicated these findings and found that emotional avoidance, but not other psychological risk factors for panic (e.g., anxiety sensitivity), tends to covary with more severe panic response, even in healthy individuals (Karekla, Forsyth, & Kelly, 2004; see also Spira, Zvolensky, Eifert, & Feldner, 2004). After several trials of inhaling CO_2 enriched air, individuals high in experiential avoidance endorsed more panic symptoms, more severe cognitive symptoms, and more fear, panic, and uncontrollability than their less avoidant counterparts. Interestingly, as in all previous studies we conducted in our labs, the magnitude of autonomic responses did not discriminate between groups.

Only one study that we know of has shown a relation between experiential avoidance and physiological reactivity to pleasant, unpleasant, and neutral film clips. In that study, persons with a greater predisposition toward experiential avoidance tended to experience their positive and negative emotions more intensely, but also showed greater heart rate suppression to unpleasant stimuli relative to their less avoidant counterparts (Sloan, 2004). These studies provide further strong evidence that experiential avoidance exacerbates aversive emotional responses and may constitute a risk factor for strong emotional learning and thus play a role in the development and maintenance of anxiety disorders. Collectively, the work discussed above and other related studies (Hayes et al., 1996) suggest that a rigid repertoire of emotional avoidance may constitute an important psychological diathesis and risk factor for the development, maintenance, and potential exacerbation of anxiety-related problems (see Feldner, Zvolensky, & Leen-Feldner, 2004, for a review). It is for this reason that emotion regulation has increasingly become a primary treatment target in newer behavior therapies.

Experiential acceptance: An example of a broad-band nonregulatory strategy. There have been increasing efforts to test alternative strategies designed to undo excessive emotion regulation, and thus foster greater discrimination and willingness to stay in contact with aversive private experiences without acting on them or because of them. In our own research lab, for instance, we compared the effects of creating an acceptance versus an emotion regulation context on avoidance behavior and reported fear in women scoring high in anxiety sensitivity (Eifert & Heffner, 2003). All women were asked to breathe 5.5% CO_2-enriched air enriched air for two 10-minute periods. This challenge procedure reliably produces involuntary and largely uncontrollable physiological sensations that are similar to those experienced by people during panic attacks (see Forsyth & Eifert, 1998a). Prior to the inhalation trials, half of the participants were taught how not to fight their reactions but to accept and make space for them, whereas the remaining participants were taught a special breathing skill and were encouraged to use it to regulate and control their reactions. Nearly half of the participants instructed to regulate their fear worried that they would lose control. Interestingly, quite a few of them (20%) actually did lose control—they dropped out of the study altogether. In contrast, participants taught to accept their reactions reported less intense fear and fewer catastrophic thoughts and were less avoidant behaviorally (0% drop out rate).

Our results were replicated in a study examining the effects of accepting versus suppressing the effects of a panicogenic CO_2 challenge in persons suffering from panic disorder (Levitt, Brown, Orsillo, & Barlow, 2004). Participants in that study were simply instructed to either accept or suppress their responses to the CO_2 challenge. The acceptance group was significantly less anxious and less avoidant than the suppression or no-instruction control groups. Yet, the groups did not differ in terms of self-reported panic symptoms or physiological responses. It is important to reiterate that people in these studies, just like people with panic attacks in natural life, had no choice about having or not having the physical sensations. People

cannot choose not to have emotions such as fear and anxiety, and quite often fear conditioning episodes. They can, however, chose to regulate fear and anxiety when it shows up or not.

There are also a number of clinical studies suggesting that client attempts to control anxiety may have negative paradoxical effects (Ascher, 1989). For example, Wegner (1994) found that attempts to control anxiety in the face of ongoing stress exacerbate physiological arousal. Additional work, though based largely on retrospective self-report, confirms that the tendency to suppress thoughts is strongly related to extent of anxiety, OCD complaints, and depression in healthy persons and OCD sufferers (McLaren & Crowe, 2003). Indeed, healthy individuals that tend to suppress personally relevant intrusive thoughts experience more depression, obsessionality, and anxiety compared with their counterparts who tend to accept such thoughts (Marcks & Woods, 2005). Additionally, Heide and Borkovec (1983) found that many of their participants who went through a relaxation exercise experienced increases rather than the targeted decreases in anxiety. A study by Craske, Rowe, Lewin, and Noriega-Dimitri (1997) also showed that adding slow diaphragmatic breathing did not increase the effectiveness of interoceptive exposure treatment for panic disorder. In fact, breathing retraining—itself a form of emotion regulation—can lead to poorer outcomes compared to treatment without such training (Schmidt et al., 2000).

In a more general way, active coping efforts that attempt to minimize the experience of anxiety may (paradoxically and unintentionally) maintain pathological anxiety and increase the anxiogenic effects of interoceptive stimulation (Craske, Street, & Barlow, 1989). For instance, Spira and colleagues (2004) found that avoidant coping strategies (e.g., denial, mental disengagement, substance abuse) predicted more frequent and intense CO_2-induced physical and cognitive panic symptoms than acceptance-based coping strategies. These findings are consistent with earlier studies showing that attempts to avoid aversive private events are largely ineffective and may be counterproductive (Cioffi & Holloway, 1993; McLaren & Crowe, 2003; Pennebaker & Beall, 1986). Together these findings suggest that hiding, actively suppressing, escaping from, or avoiding negative thoughts and emotions is not helpful in the long term. In fact, purposefully trying to control feeling anxious may increase the very anxiety one wants to control (Gross & Levenson, 1997), while also increasing the probability that unwanted emotional responses will recur again (often in more severe form) in the future (Cox, Swinson, Norton, & Kuch, 1991; Hayes, 2004a; Hayes et al., 1996, 1999). Worse yet, anxiety suppression and control efforts can act to decrease positive emotional experiences (Gross, 2002). The result is more anxiety, not less, which will likely be followed by more effort to control the anxiety, in a self-perpetuating cycle.

Fear Learning in an Emotion Regulation Context

Fear learning provides an important experiential foundation for stimuli and situations to acquire aversive functions, and likewise to alter those functions via exposure-based interventions. Verbal processes, in turn, can expand the range of events that may evoke fear, including avoidance, following aversive learning. Thus, any point in the emotion generative process could, in principal, be a target of emotion regulation within and outside a fear learning context (see Forsyth et al., 2005). For instance, persons may act to avoid or escape from antecedents that may evoke or occasion fearful responding (i.e., CSs, occasion setters, S^Ds); aversive stimuli that may evoke fear and anxiety (i.e., UCSs, punishers); contexts or situations that may reliably predict a relation between antecedents and emotional consequences. Persons may also act to avoid or escape from the very experience of fear itself and any accompanying thoughts, sensations, behavioral tendencies, or consequences. Such process not only interfere

with functioning, but also work against approach behavior and thus also act against extinction processes from taking hold.

Although fear learning may temporarily disrupt ongoing behavior (e.g., avoidance or escape), emotion regulation strategies may take this basic form of learning to a whole new level. Specifically, we have proposed (cf. Forsyth et al., 2005) that fear and fear learning may shift from being a normative process to a disordered process when persons: (a) do not accept the reality that they experience certain emotions, thoughts, memories, or physical sensations they do not like; (b) are unwilling to be in contact with them as they are; (c) take deliberate steps to alter their form and frequency or the circumstances that occasion those experiences, and (d) do so rigidly and inflexibly even at significant personal and interpersonal cost (cf. Forsyth, 2000; Forsyth & Eifert, 1996b, 1998b; Friman, et al., 1998; Hayes et al., 1996). These four behavioral predispositions, and the verbal-cognitive processes that guide their regulation, are at the core of understanding the development and maintenance of anxiety disorders and figure prominently in several contemporary behavioral approaches to treatment such as *Acceptance and Commitment Therapy* (ACT; Hayes et al., 1999), *Dialetical Behavior Therapy* (Linehan, 1993), *Functional Analytic Psychotherapy* (Kohlenberg & Tsai, 1991), *Integrative Behavioral Couples Therapy* (Jacobson, Christensen, Prince, Cordova, & Eldridge, 2000), and *Mindfulness-Based Cognitive Therapy* (Segal, Williams, & Teasdale, 2002).

An important element of this model is the very idea that rigid emotion regulation (i.e., control, suppression, avoidance, distraction, escape) may emerge as a consequence of fear learning. Another is that the involvement of language may transform fear learning into anxiety pathology. The very processes that establish and shape emotion regulation may, in turn, function as an important predisposition for fear and fear learning to become problematic (Forsyth et al., 2005). There are at least two ways this could happen. First, language processes can expand the range of stimuli relevant to previous (adaptive) learning, including logically related events (e.g., "I was afraid in the mall," "I felt trapped," "I could be trapped in an elevator or an open field or a marriage," etc.), imagined futures, or fear itself. Second, language can create self-amplifying loops (e.g., rules about how not to think of fearful things, which when followed evoke thinking about fearful things). Language also provides plenty of strong approach contingencies. Thus, persons can drive themselves with the same relational repertoire that simultaneously is expanding out fear learning into every corner, and self-amplifying it through the unworkable combination of rule-governed and contingency-based behavioral regulatory processes. Experiential avoidance is a life constricting behavior precisely because humans cannot avoid their psychological experience of the world while at the same time engaging powerful approach contingencies in that world.

If this account is, at least in part, correct, then it points to several key processes that may turn emotional and psychological pain, whether conditioned or not, into suffering. One such process is the tendency to self-regulate unpleasant emotions, including associated thoughts, feelings, and behavioral tendencies. The second process points to the role of language in maintaining such regulation tendencies. Verbal relational learning is typically additive not subtractive (Hayes et al., 2001), and thus can function to expand the range of events that (a) evoke fear based on limited learning and (b) the range of events for which emotion regulation is applied. These processes can turn emotional pain into suffering precisely because successful emotion regulation – itself a form of avoidance – becomes a prerequisite for effective action. Often such relations take the form of rules such as "I can't fly in a plane because I will have a panic attack," "I don't want to go out because I'm depressed," or "I get too anxious when I'm

around people." These examples, and many others like them, hint at the kinds of approach-avoidance relations described early on.

Contrast these with "I can fly and may have a panic attack," "I will go out along with my depression," and "I can be anxious or have an upsetting thought and be around people." These latter examples include only approach-approach contingencies. They also highlight how excessive emotion regulation may act to facilitate or impair functioning and turn fear learning and fear into disordered fear and fear learning. Emotion regulation and the verbal actions that guide it represent processes that can be targeted directly in prevention and intervention efforts, whereas fear, fear learning, and approach contingencies are facts of life that need not be changed. The posture of acceptance (i.e., non-avoidance) may be a key preventive mechanism that protects persons from developing anxiety disorders.

BASIC AND APPLIED IMPLICATIONS

Up to this point, we have provided a broad outline of our recent arguments for conceptualizing fear learning in an emotion regulation context (see Forsyth et al., in press). This perspective does not diminish the relevant work regarding the nature of fear learning itself. Rather, this view suggests that it is critical to evaluate what people do about fear learning processes when attempting to develop more effective cognitive behavioral interventions for anxiety disorders. Below we briefly highlight some of the basic and applied implications of an emotion regulation account for fear conditioning research and for developing more unified treatments for anxiety disorders.

Implications for Fear Learning Research

First, it seems clear that certain forms of emotion regulation can exacerbate fearful and anxious responding. Thus, a person who walks into a fear learning experience with a greater tendency toward experiential avoidance ought to (a) be more likely to respond to that experience negatively, (b) show greater efforts to escape from experiential and psychological aspects of that experience, (c) show greater disruptions in ongoing behavior, and consequently (d) act to avoid similar kinds of experiences to a greater degree than individuals who are not so predisposed. This process may, in turn, increase the likelihood of strong negative emotional learning and promote resistance to extinction. Indirect support of this can be found in studies that have shown that anxious persons, particularly those with PTSD, tend to show more robust fear learning compared with nonanxious controls (e.g., Orr et al., 2000; Pitman & Orr, 1986). Though this research is suggestive, it is important to note that there have been no studies that have explicitly assessed for, or otherwise have attempted to manipulate directly, emotion regulation strategies in a fear learning context.

Second, the study of emotion regulation within a fear learning context has been somewhat limited. Yet, basic conditioning arrangements could be juxtaposed with emotion regulation processes that are selected for (i.e., individual difference) or manipulated directly (e.g., training to suppress, express, accept the antecedents and consequences of fear learning). Regardless of the strategy used, it will be important to develop experimental preparations that more closely resemble the kinds of contingencies that humans might confront in their natural environments. In the natural environment, for instance, it is often the case that the CS and UCS are one and the same (e.g., a snake bites, not a snake and a bite as two separate events). Indeed, in the real world it would be unusual for a CS to appear first, disappear, with this disappearance being followed by a UCS. Yet, this is precisely the kind of contingency used in trace and some forms of delay conditioning. Though such contingencies tend to yield more reliable conditioning

in the laboratory, in the natural environment it is more likely that the CS and UCS occur closely together, at times simultaneously, because the CS delivers the UCS. This is particularly true of interoceptive conditioning, where the CS and UCS/UCR are bodily changes or sensations.

Third, we know that conditioning in language-able humans is far from being noncognitive. Verbal-symbolic processes are often tightly embedded with human experience and allow for complex forms of relational responding that cannot be readily explained by invoking stimulus generalization, higher-order conditioning, or mediated generalization. Networks of verbal relations are expansive, and so too are the functions that may transfer via such relations. As such networks expand, the functions that transfer do not degrade in the same way responding may degrade across a stimulus generalization gradient or via second- or third-order conditioned relations (see Hayes et al., 2001, for a detailed review). What this means is that there is probably no such thing as a purely nonverbal conditioning event in verbally able humans, in part, because the experience of human emotion is psychological and relational and verbal. It also means that Pavlovian conditioning preparations may not only involve Pavlovian processes, particularly in humans where both classical and operant learning contingencies typically interact in complex ways to shape and guide behavior. Emotion regulation is one such operant. There are many others.

Fourth, ethical constraints and practical considerations have made it notoriously difficult to model fearful emotional responding in laboratory human conditioning research. For instance, fearful responding in the natural environment—a response that most closely resembles panic—is rarely approximated in the laboratory, the exception being studies using panicogenic challenge agents as UCSs (e.g., CO_2-enriched air; Forsyth & Eifert, 1998a). This really needs to change if we are to develop more ecologically valid models of human fear learning. In addition, the tendency to allow participants to set the intensity of aversive UCSs in human conditioning research, however justified for ethical reasons, is far removed from the kinds of conditions that likely operate when fear learning occurs in the natural environment. In fact, it would be difficult to imagine persons being able to set the strength of an aversive event (a form of antecedent regulation), or even their possible reactions to it, prior to experiencing an aversive learning episode in the real world.

Fifth, and perhaps most importantly, laboratory fear learning preparations with humans tend to occur in relative isolation from competing environmental demands. Participants in laboratory fear conditioning studies typically sit idly and are presented with the aversive contingencies. There are no costs associated with such learning, at least from the perspective of the participant. Participants sit, experimenters deliver the contingencies, and participants take it. Yet, in the natural environment, such learning typically occurs in the context of competing approach contingencies and fluid ongoing actions in and within a context. For instance, a rat will cease bar pressing for food in the presence of a CS that has been reliably paired with shock. Most humans will likewise show some disruption and narrowing of ongoing behavior when afraid, regardless of the source, in the natural environment. Eventually, however, the rat will return to bar pressing at CS offset. Most human beings will also return to doing what was important to them.

The tendency toward experiential avoidance, by contrast, can result in less flexible behavior, and hence keep people off track and miserable long after conditioned or unconditioned sources of threat has passed. In this context, experiencing anxiety is not merely a bump in the road, but rather costly in psychological terms. Persons with a tendency toward experiential avoidance often build their lives around not having fear and anxiety. These actions keep people

stuck and are disruptive precisely because they are unnecessary, contextually insensitive, and tend get in the way of meaningful life activities. That is, approach-avoidance contingencies best characterize problematic experiences of fear and fear learning in the natural environment.

Virtually all human fear learning research, by contrast, models only aversive contingencies. To the extent possible, fear learning research needs to attend to competing approach-avoidance contingencies in the laboratory. This work may include study of how emotion regulation potentiates or depotentiates fear learning and how the consequences of fear learning and its regulation disrupt *meaningful* goal-directed actions, and hence result in real costs for the individual. Arguably, modeling such contingencies in the laboratory will be a challenge with humans. Yet, we believe it can be done and needs to be done. The same is true of research that aims to evaluate how experiential avoidance functions as a predisposition for, and perhaps even how it may emerge as a consequence of, fear learning and other forms of learning. Numerous emotion regulatory processes could be studied here, either alone or in combination with other regulatory processes. Knowing that such regulatory tendencies account for a good deal of human suffering and are typically salient targets for treatment are two good reasons that such work ought to make its way into fear conditioning analog research. This view is now making its way into mainstream cognitive-behavioral therapies for anxiety disorders, resulting in a rethinking of the symptom-focused mastery and control agenda (Barlow et al., 2004).

General Treatment Implications

The literature on emotion regulation and experiential avoidance suggests a number of related clinical strategies that target the agenda of emotion regulation itself and the verbal processes supporting it (e.g., Eifert & Forsyth, 2005; Hayes et al., 1999). For instance, experiential exercises based on metaphor and paradox may be used to teach clients how to experience their anxious thoughts and feelings from a mindful, detached, observer perspective, while learning to make space for anxious thoughts and feelings and other unwanted facets of their private world (e.g., physical sensations, images, memories). The goal here would be to foster greater experiential openness and psychological flexibility and less rule-governed behavior. By weakening powerful verbally-regulated avoidance contingencies that might set up approach-avoidance conflicts in the natural environment, an acceptance posture also may help free up clients to use their hands and feet to regulate how they live their lives, and thus transform problematic fear and anxiety into just fear and anxiety. This is potentially important, for it suggests that interventions that defuse regulation may result in more approach-approach relations in a client's natural environment, and a broader range of functioning. It also suggests that therapists ought to attend to approach-avoidance contingencies in the therapeutic setting and thus frame exposure in way so that it models such contingencies, and not simply avoidance contingencies (for a detailed treatment guide, see Eifert & Forsyth, 2005).

Additionally, the verbal-relational properties entailed in language and emotion regulation are additive and expansive, and heavily dependent on context (Hayes et al., 2001). The basic animal and human literature also suggests that extinction is not unlearning, but new learning. In fact, it is becoming increasingly clear that contextual factors are important in fear renewal and relapse (Craske, 2003). Language processes also serve as an important context that may function to occasion fear relapse and fear renewal. For instance, suppose a person has learned a relation between panic attacks, elevators, and avoidance. These relations, in turn, are reliably evoked in the context of going to work (approach contingency) and other important activities where closed spaces may be involved. Interoceptive and exteroceptive exposure may be quite successful in

altering such relations, including altering the functions of other events that might be part of this network.

Yet, a broad transformation across the network may be incomplete. When this happens, other unchecked elements of the network may function to reactivate and solidify previously altered relations, including the very agenda of emotion regulation itself. For instance, suppose this person later finds herself in a relationship and feels "trapped." This feeling, in turn, may evoke panic and avoidance, and because both were related to closed spaces before, she may subsequently experience renewal of fear to elevators and other closed spaces without further panic attacks in those contexts. Unfortunately, we know surprising little about how verbal processes function in exposure therapy and fear renewal. Yet, basic research on verbal processes suggests that such outcomes are likely and may be difficult to prevent entirely (see Hayes et al., 2001, for a review). This again highlights why disrupting the emotion regulation agenda may be critical, in part, because it helps hold together and make toxic aversive emotional states in the context of competing environmental demands.

Specific Implications for Cognitive-Behavioral Therapies

Mainstream cognitive-behavioral therapies (CBT) for anxiety disorders tend to conceptualize unwanted anxiety-related private events as problems that warrant clinical attention (e.g., Beck, Emery, & Greenberg, 1985). Accordingly, the therapeutic solution is to alleviate symptoms by getting clients to confront feared objects or aversive bodily events in a safe therapeutic context to facilitate corrective emotional learning and fear reduction (e.g., Barlow, 2002). Techniques used include exteroceptive or interoceptive in vivo exposure, imaginal exposure, thought stopping, response prevention, flooding, systematic desensitization, worry control and decatastrophizing, cognitive restructuring, systematic desensitization, guided imagery, breathing retraining, and progressive muscle relation. Comprehensive treatment manuals incorporating such techniques are available for all major anxiety disorders: panic disorder (e.g., *Mastery of Your Anxiety and Panic*, Barlow & Craske, 2000), specific phobias (e.g., *Mastery of Your Specific Phobia*; Antony, Craske, & Barlow, 1997), obsessive-compulsive disorder (*Mastery of Obsessive-Compulsive Disorder*; Foa & Kozak, 1997b), and generalized anxiety disorder (*Mastery of Your Anxiety and Worry*; Zinbarg, Craske & Barlow, 1993).

The word "mastery" in the titles of such manuals is not accidental and reflects the underlying philosophy and approach of such treatments. These treatments suggest, either explicitly or implicitly, that having catastrophic or other "maladaptive" thoughts are part of the problem and a cause of human suffering that may interfere with living a successful life. Otherwise, it would make no sense to target them for change in therapy. The goal is to assist clients in becoming better at controlling (i.e., mastering) their thoughts and emotional experiences by teaching them more effective regulation strategies. This is indeed what many anxious clients expect from psychotherapy: They want to learn more effective ways of reducing unwanted private events.

A key problem of traditional CBT is that it tends to play into this system by suggesting to clients that pursuing a control and mastery approach may indeed be a long-term workable solution and by attempting to teach clients more effective management strategies than they may have used in the past. The literature on the effects of experiential avoidance, however, suggests that this approach itself may be flawed and points to a different strategy. This strategy involves addressing the agenda of emotion regulation itself so as to help clients give up the struggle to control and avoid unwanted thoughts and feelings. Thus far, people have often desperately tried to relax *away* fear and anxiety by pushing their unwanted thoughts and feelings away. Instead,

an acceptance-based behavior therapy approach aims to help people relax *with* their anxiety—whether conditioned or not—by being and moving with it. Anxious thoughts and feelings are not considered "symptomatic" of anything, but rather normal facets of human experience. The task for clients then is no longer to down-regulate anxiety and fear because anxiety and fear per se are not the problem.

Targeting unwanted private experiences in therapy has been shown to be quite efficacious and can produce symptom reduction and relief. This strategy, however, also keeps clients entangled in their struggle with their experience suggesting that what their experience per se is problematic and the cause of life problems. Thus, when anxious thoughts and feelings occur again (and they will occur again), clients will be inclined to engage in engage in efforts to change or deuce them fearing that otherwise more problems will result. Yet what differentiates psychological health and normal pain from disordered suffering is not the absence of negative private events. The difference is whether people are willing to experience whatever it is that they experience and still do what matters most to them. We could aim to teach people how to experience a wide range of emotional experience, willingly and without defense, and behave effectively despite what they may think or feel. *Willing* here is not about brute force of will. It means being open and having what is. It is about finding a way to live a meaningful and productive life *and* taking personal pains and joys along for the ride instead of living to avoid or manage psychological pain. This view is now making its way into mainstream CBT, resulting in a rethinking of the symptom-focused mastery and control agenda (Barlow et al., 2004).

Acceptance and Commitment Therapy for Anxiety Disorders

New wave generation behavior therapies (Hayes, 2004a, 2004b) tend to focus on domains of human experience that go well beyond symptom alleviation and control as therapeutic goals. Instead, they emphasize topics traditionally reserved for less empirical wings of psychology such as acceptance, mindfulness, values, spirituality, meaning and purpose, relationships, and quality of life (Hayes, Follette, & Linehan, 2004). These approaches challenge the symptom and syndrome-focused change agenda that has come to characterize much of mainstream CBT. They offer a unique and expanded view of human suffering and what it means to foster psychological health and wellness. To illustrate, we outline briefly the basic elements of an ACT approach to the treatment of anxiety disorders (for a more detailed session-by-session treatment guide, see Eifert & Forsyth, 2005).

First, within a coherent theoretical and philosophical framework, ACT illuminates the ways that language entangles clients into futile attempts to wage war against their own inner lives. This war is fundamentally about the application of emotion regulation efforts in contexts where such regulation efforts are unnecessary or unworkable. Addressing the struggle head on is what an ACT approach to treatment is about because non-acceptance and struggle with anxiety is the toxic process that makes anxiety disordered. ACT tries to undermine and loosen the hold that excessive, rigid, and inflexible emotion regulation has on the lives of anxiety sufferers. With anxiety disorders, this form of regulation usually centers on anxious thoughts and feelings that are unwanted or undesired, including the situations that might occasion them. They spend their lives focused on not experiencing anxiety and fear rather than doing what is most important to them. Through experiential exercises based on metaphor and paradox, clients learn how to experience their anxious thoughts and feelings from a mindful observer perspective, as they are rather than as how they evaluate them. Learning to make space for anxious thoughts and feelings and other unwanted facets of their private world (e.g., physical sensations, images, memories) to foster greater experiential openness and psychological flexibility. This acceptance

posture frees up clients to use their hands and feet to regulate how they live their lives consistent with their values and goals.

Second, cognitive-behavioral interventions typically focus on narrow-band clinical outcomes in the form of symptom reduction and relief. To get there, however, clients typically must go through quite a bit of pain by confronting anxiety and fear-evoking cues and situations during in vivo or imaginal exposure exercises. Interestingly, this is the point at which more than a few anxious clients drop out of therapy (Becker & Zayfert, 2001). Two recent studies from our labs showed the positive effects of an acceptance context for preventing dropout. The first study (Karekla & Forsyth, 2004) showed significant differences in the pattern of attrition rates between CBT vs. ACT-enhanced CBT for persons suffering from panic disorder. Prior to introducing the rationales for interoceptive and exteroceptive exposure, none of the CBT clients and only three ACT clients dropped out of therapy prematurely. However, following the introduction of the exposure rationales, five persons discontinued therapy in the PCT group (the only drop outs!) and only one person in the ACT group.

The main difference between the exposure rationales was in how they were framed (i.e., mastery and control of panic vs. mastery of experiencing panic) and for what purpose (i.e., controlling panic symptoms vs. living more fully and consistently with what one values). The results of this study suggest that exposure conducted in the service of feeling better is somewhat limiting and not very inspiring. All the pain of therapy and for what? The hope of feeling less anxious? At some level, anxious persons recognize that feeling less anxious does not mean that they will be anxiety free, or that somehow their lives will be better, richer, or more meaningful. In the second related study with highly anxious females (Eifert & Heffner, 2003) who experienced panic-like responses in an acceptance or a control context, we found that 20% of control participants dropped out of the study, whereas none of the acceptance participants did. Here, too, by giving up their efforts to gain control, people had actually gained control and strength.

While ACT allows room for symptom alleviation, it is not a main target or *the* therapeutic goal. Rather, the focus is on what we call broad-band outcomes. Such outcomes are about helping the client move in life directions that they truly care about. For instance, a client may value having deep and meaningful relationships with her children, but is letting her anxiety regulation efforts get in the way of that. Within ACT, the focus would be about removing barriers to having that kind of relationship with her children (e.g., unnecessary emotion regulation strategies). Anxiety reduction may occur as a consequence, but it is not an explicit target. Rather, the explicit targets are in areas that most readers will associate with a life lived well, namely living in a manner consistent with meaningful values and goals. Making and keeping value-guided commitments are an important part of an ACT approach to anxiety disorders (Eifert & Forsyth, 2005). Valued living dignifies the treatment, and makes the hard work of therapy worthwhile.

Traditional CBT exposure interventions for anxiety have a different feel when used within an ACT approach. Virtually all of them are recast within an Acceptance and Mastery of Experiencing framework. Exposure, for instance, is no longer cast as an eliminative technique within a mastery and control of anxiety framework because it sends a message to the client that anxiety is the problem and must be reduced or managed before a client can live better. Rather, exposure within ACT is framed as one of several experiential exercises, with the goal being to *feel* better (i.e., become better at feeling), not to feel *better* (i.e., feeling less anxiety). This mastery of experience framework for ACT exposure exercises is about helping clients develop

willingness to experience thoughts and feelings for what they are. Thus, exposure exercises within ACT are framed in the service of fostering greater psychological flexibility, experiential willingness, and openness. They are about growth and are always done in the service of client values and goals. This approach, which we describe in detail elsewhere (Eifert & Forsyth, 2005), is very much about altering how clients with anxiety respond to their emotional and psychological experiences, not the structure or content of those experiences. We are trying to help clients make room for those experiences, while freeing up psychological and behavioral space for clients to get on with the task of living their lives consistent with and in the direction of their chosen values.

SUMMARY

When viewed historically, behavior therapy has been an enormously successful experiment. Its success, in turn, is based in large part on the simple principle of conducting clinical science with at least one eye on practical utility. The utility of fear conditioning research as a clinical analog of anxiety-related suffering is a good news, bad news story. The good news is that Pavlovian fear conditioning research and theory, despite numerous criticisms regarding its scope and clinical relevance, remains at the core of contemporary behavioral accounts of the origins, maintenance, and amelioration of anxiety disorders. The bad news is that first and second generation behavior therapies represented classical conditioning and cognitive content as a sufficient models to account for the development of anxiety disorders. This led to the notion that anxiety-related suffering is about excessive physiological responding or other psychological content, including avoidance.

This chapter introduced the notion that fear and its conditioned basis are not disordered processes per se, but rather become so when humans act on them and because of them so as to alter their form, frequency, or occurrence. The regulation of anxiety and fear using any number of strategies may result in temporary relief (e.g., anxiety reduction via negative reinforcement). Yet, the cumulative effect over time of such actions is life constriction and long-term suffering. Such actions, when rigidly and inflexibly applied, can take over a person's life and turn the experience of fear and fear learning into an emotional experience that is a problem, not simply a painful experience that can be had. This work suggests that exposure-based interventions may need to attend to the emotion regulation agenda itself, while reframing exposure in terms of valued life goals (e.g., family, relationships, spirituality, health), not control or attenuation of anxiety and fear as goals. Otherwise, exposure and cognitive change procedures may be used as yet another set of emotion regulation strategies that may, in the end, set clients up for fear renewal and relapse.

The emerging consensus is that such regulation tends to make aversive emotions more intense and more likely to occur: *if you don't want it, you've got it.* This outcome, when coupled with powerful approach contingencies, may function as a predisposing and maintaining factor for anxiety pathology. As clients learn to give up the struggle and control agenda and focus on life-goal related activities, they are no longer owned by their unwanted experiences. After developing greater clarity about personal values and committing to needed behavior change, we encourage clients to embark on the journey and put those commitments into action. They are free to live.

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