

Expanding Our Conceptualization of and Treatment for Generalized Anxiety Disorder: Integrating Mindfulness/Acceptance-Based Approaches With Existing Cognitive-Behavioral Models

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Generalized anxiety disorder (GAD) is a chronic, pervasive disorder for which we have yet to develop sufficiently efficacious interventions. In this article we propose that recent research and theory regarding this disorder supports the integration of acceptance-based treatments with existing cognitive-behavioral treatments for GAD to improve the efficacy and clinical significance of such approaches. The bases for this proposal (from both the GAD and the acceptance-based treatment literature) are reviewed, and a new treatment stemming from this conceptual integration is described.

Key words: worry, generalized anxiety disorder, acceptance-based therapy, mindfulness, experiential avoidance. [*Clin Psychol Sci Prac* 9:54–68, 2002]

Generalized anxiety disorder (GAD) is a chronic, pervasive disorder for which we have yet to develop sufficiently efficacious treatments (Brown, Barlow, & Liebowitz, 1994). Fortunately, several researchers have begun to develop and evaluate new treatments based on recent research on the nature of GAD and chronic worry (GAD's central defining feature). For instance, Borkovec and others (e.g., Borkovec, 1999; Newman, 2000) have begun to integrate interpersonal strategies in their cognitive-behavioral treatment approach, Ladouceur and colleagues (e.g., Ladouceur et al., 2000) have specifically targeted intolerance of uncertainty (described more below) in their cognitive behavioral treatment, and Wells (e.g., 1999) has

advocated the inclusion of metacognitive strategies in treatments of GAD. In addition to these important developments in theory and intervention, we believe that an explicit integration of mindfulness and acceptance perspectives into existing models, empirical study, and treatments of GAD may improve the efficacy and breadth of impact of extant interventions. Our goal in this article is to present a conceptual integration of current theory and research of GAD and acceptance-based perspectives (from outside the GAD area). Rather than comprehensively reviewing the literature on GAD (for such a review, see Brown, 1999; Craske, 1999; Roemer, Orsillo, & Barlow, in press), we begin with a brief overview of the diagnostic criteria of GAD, its psychosocial impact, and the state of current psychotherapy outcome research on GAD. We then review existing research and theory on GAD (and worry) and acceptance-based/mindfulness approaches in an effort to propose a conceptual framework that may facilitate future basic research and treatment development efforts. We conclude with a brief overview of the treatment approach we are currently developing from the integration of these two areas of the literature. It is important to note that this model and our treatment are in preliminary stages; considerably more basic and treatment research is needed to determine the validity of the proposals we make here.

DIAGNOSIS OF GAD

GAD was initially introduced in *DSM-III* (American Psychiatric Association [APA], 1980) as a residual category (i.e., only assigned when criteria for other anxiety disorders were not met), but it has since undergone numerous empirically based revisions (e.g., Brown et al., 1994; Marten et al., 1993). For instance, in *DSM-III-R* (APA, 1987),

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worry was identified as the central defining feature of GAD, and a host of associated somatic features were specified. In *DSM-IV* (APA, 1994), the pervasiveness and uncontrollability of worry were emphasized, whereas the unrealistic nature of worry was dropped from the definition. A particularly important change in *DSM-IV* was a refinement of the associated features, eliminating the autonomic arousal symptoms (e.g., accelerated heart rate, sweaty palms) that tend to be associated with many other anxiety disorders, but are less frequent among individuals with GAD (Marten et al., 1993). Instead, GAD in *DSM-IV* is diagnosed if excessive worry (about multiple topics) that is difficult to control is associated with three (or more) of the following six symptoms: muscle tension, restlessness/feeling keyed up or on edge, difficulty concentrating/mind going blank, being easily fatigued, irritability, and sleep disturbance.

PSYCHOSOCIAL IMPACT OF GAD

GAD is a relatively common disorder associated with a chronic course, high rates of comorbidity, and significant interference in functioning. The National Comorbidity Study yielded a lifetime prevalence estimate of 5.1% for GAD and revealed that GAD is associated with significant psychosocial impairment (Wittchen, Zhao, Kessler, & Eaton, 1994). In addition, GAD is significantly associated with increased utilization of family doctors and other (nonpsychiatric) medical specialists (Greenberg et al., 1999). Recent studies have indicated that GAD is unlikely to remit on its own (Yonkers, Warshaw, Massion, & Keller, 1996) and remains more chronic than panic disorder following a course of pharmacotherapy (Woodman, Noyes, Black, Schlosser, & Yagia, 1999). In addition, GAD is associated with high rates of comorbidity, particularly social phobia, panic disorder, and depressive disorders (e.g., Brown & Barlow, 1992; Wittchen et al., 1994), and this comorbidity is associated with increased functional impairment (Wittchen et al., 1994) and health care utilization/cost (Souetre et al., 1994).

GAD may also have an important impact on the development and course of other Axis I disorders and as such may be a particularly important target for treatment. According to Barlow's (1988, in press) model, the anxious apprehension (worry) that centrally characterizes GAD is a contributing factor across the emotional disorders. Thus, the successful treatment of anxious apprehension in GAD

may have a therapeutic effect on other disorders. In fact, studies have shown that successful treatment of GAD beneficially impacts comorbid disorders (Borkovec, Abel, & Newman, 1995; Ladouceur et al., in press).

CURRENT STATUS OF PSYCHOTHERAPY OUTCOME RESEARCH IN GAD

Borkovec and Ruscio (2001) reviewed 13 controlled GAD treatment outcome studies and concluded that cognitive-behavioral approaches yield significant changes (with large effect sizes) that are maintained or improved at follow-up. This review concluded that cognitive-behavioral treatments have been found more efficacious than waitlist control conditions (e.g., Barlow, Rapee, & Brown, 1992) and have most often been found more efficacious than nonspecific treatment conditions (e.g., Borkovec & Costello, 1993). In addition, several studies that have compared components of cognitive-behavioral treatment (CBT) to a full package of CBT have found the full package to yield larger effects. For instance, Butler, Fennell, Robson, and Gelder (1991) found a treatment with cognitive restructuring, relaxation, and in vivo exposure was more effective than one with relaxation and in vivo exposure alone. However, some studies have found dismantled and full packages comparable (e.g., Barlow and colleagues [1992] found both applied relaxation and cognitive therapy alone were comparable to a treatment with both combined). Thus, it remains unclear if certain elements of the cognitive-behavioral package are necessary ingredients in efficacious treatment of GAD. The treatments with demonstrated efficacy vary some in specific details, but generally include the following components: psychoeducation, early detection of anxiety cues and monitoring of anxious responding, applied relaxation (Öst, 1987), some form of imaginal exposure, desensitization, or coping skills rehearsal (e.g., Goldfried, 1971), and cognitive restructuring (e.g., Beck & Emery, 1985).

Although efficacious interventions have been developed for GAD, to date it remains the least successfully treated of the anxiety disorders (Brown et al., 1994). Despite the apparent efficacy of cognitive-behavioral approaches, none has yielded high end-state functioning (i.e., scores on outcome measures within normative ranges) for a large proportion of the treated sample. Butler and colleagues (1991) reported that only 42% of their clients receiving CBT evidenced a "good outcome"

(defined similarly to high end-state functioning), and Borkovec and Costello (1993) reported that 58% of those clients receiving CBT demonstrated high end-state functioning at follow-up. A recent waitlist comparison study of a newly developed cognitive-behavioral treatment that targets several empirically determined aspects of GAD (e.g., intolerance of uncertainty and cognitive avoidance, discussed in more detail below) yielded promising results, yet still only 58% of the sample demonstrated high end-state functioning at 12-month follow-up (Ladouceur et al., 2000). In addition, no studies to date have explored the impact of psychosocial treatments for GAD on a broader range of functioning (e.g., life satisfaction, social and occupational impairment).

The current state of treatment outcome research suggests that current cognitive-behavioral interventions are efficacious, but that a substantial number of individuals receiving these interventions continue to report significant difficulties after treatment. These findings suggest that we need to explore treatment elements that might increase the efficacy of existing interventions. In addition, we need to target broader outcomes given that GAD is associated with functional impairment. Accumulated knowledge from basic research and theories of GAD and worry converges with new developments in behavioral interventions for other disorders to suggest the potential efficacy of integrating mindfulness/acceptance elements and traditional cognitive-behavioral techniques. In the next section, we review current theory and research on the nature of GAD and its centrally defining feature, worry, highlighting elements that suggest the appropriateness of integrating a mindfulness/acceptance component in conceptualizations of treatment for this disorder.

THE NATURE OF GAD AND WORRY

Treatments for GAD have lagged behind those for the other anxiety disorders in part because it is only recently that GAD moved from a residual category in the *DSM* to one with its own defining features (in *DSM-III-R*; APA, 1987). However, another significant challenge for treatment development in this area stems from the relatively diffuse nature of the central defining feature of GAD, worry. Studies attempting to uncover a specific focus of worry among individuals diagnosed with GAD have shown that GAD worry is not characterized by any particular fears, but instead by more frequent worries about a range of topics, as well as idiosyncratic and minor worries

(Brown et al., 1994; Roemer, Molina, & Borkovec, 1997). These worries take the form of catastrophic predictions of low-probability negative events in the future (Borkovec, Shadick, & Hopkins, 1991; Dugas et al., 1998), which are readily accessible due to information-processing biases toward threatening information (Matthews, 1990), and a tendency to overestimate risk (Butler & Matthews, 1987). The pervasive nature of worry is also evident in the consistent clinical observation that individuals with GAD seem to move from one worry topic to another, rather than focusing exclusively on one area for an extended period of time (Borkovec & Roemer, 1994; Butler, 1994). Studies have also revealed that GAD worry is characterized by worry about worry, or meta-worry (Wells & Carter, 1999). These findings have been incorporated in the *DSM-IV* definition of GAD, in which worry is characterized as pervasive and uncontrollable, rather than involving any particular content.

Although the recognition of the pervasive nature of worry has advanced conceptual knowledge of GAD, this realization has presented challenges in identifying the potential target of therapy. Successful treatments for other anxiety disorders have largely focused on exposure to specific classes of fear-eliciting stimuli (e.g., social situations, interoceptive cues, trauma reminders) that are central to the definition of the disorder. In contrast, given that GAD is characterized by a wide-range of feared outcomes that are generally future-oriented and largely internally generated (Borkovec, Hazlett-Stevens, & Diaz, 1999), the target of potential exposure therapy for GAD is more diffuse and transient and thus difficult to operationally define.

Just as GAD is not characterized by reactions to circumscribed phobic stimuli, it is also not generally considered to be associated with specific phobic behavioral avoidance (Borkovec et al., 1999; Butler, Gelder, Hibbert, Cullington, & Klimes, 1987). Theories and research in GAD over the past 10 years have focused instead on use of cognitive strategies of avoidance in GAD, and particularly the avoidant function of worry (cf. Borkovec, 1994; discussed in more detail below). However, some evidence for behavioral avoidance among individuals with GAD exists; in one study, 64% of individuals with GAD reported avoidance of specific situations, with avoidance of social situations reported most commonly (Butler et al., 1987). Thus, it is important not to ignore the importance of avoidant behavior among individuals with GAD. Although individuals with GAD exhibit a great deal of

nervous activity, they typically do not act in ways that might resolve problems, confront fears, or pursue desired outcomes. We address this restriction in behavior more fully below, after a discussion of research on the function of worry. It is our view that examination of the avoidant function of worry and the constriction of productive behavior in GAD is necessary to further the development of treatments that will more fully and effectively address this chronic disorder.

Worry as Experiential Avoidance

Our conceptualization draws heavily from Tom Borkovec's conceptualization of worry as a form of avoidance (e.g., Borkovec, 1994; Borkovec, Alcaine, & Behar, in press). Several lines of investigation support an avoidance conceptualization of worry through two different mechanisms: (a) superstitious perceived avoidance of low-probability future negative events (e.g., believing that worrying reduces the likelihood of a future automobile accident); and (b) experiential avoidance—that is, both strategic and automatic avoidance of internal distress (e.g., worry about minor matters may serve to decrease thoughts and feelings about one's sense of worthlessness). Several investigators have explored the reasons that chronic worriers engage in worry, consistently finding that worriers believe their worry will help them prepare for, problem solve, or superstitiously avoid the negative events they fear (Borkovec & Roemer, 1995; Cartwright-Hatton & Wells, 1997; Davey, Tallis, & Capuzzo, 1996). However, engaging in worry does not reduce the likelihood of negative outcomes or increase the likelihood of effective coping (Borkovec et al., 1999), nor does it result in effective, concrete problem solving (Stöber, 1998). Nevertheless, because individuals with GAD typically predict events that are extremely unlikely, their belief in the superstitious efficacy of their worry is frequently reinforced by the nonoccurrence of feared outcomes, thereby strengthening this belief and increasing the frequency of their worry (Borkovec et al., 1999).

This conceptualization meshes nicely with recent theorizing by Ladouceur and colleagues regarding the central role of intolerance of uncertainty in GAD (e.g., Freeston, Rhéaume, Letarte, Dugas, & Ladouceur, 1994; Dugas, Gagnon, Ladouceur, & Freeston, 1998). These researchers have shown that individuals with GAD are more likely than individuals suffering from other anxiety disorders to express difficulty tolerating or accepting uncertainty

(Dugas, Gagnon, et al., 1998). The chronic tendency to predict negative outcomes in the form of catastrophic worry, coupled with the belief that this practice somehow controls the occurrence of these outcomes, may provide these individuals with an illusion of certainty and predictability, thus reducing the experience of uncertainty (and unpredictability, Craske, 1999). Thus, for an individual with GAD, worry functions to decrease the perceived likelihood of negative events and also to decrease a sense of uncertainty, which these individuals find particularly intolerable. If we apply Mowrer's (1960) two-factor theory of fear, which suggests that avoidance of fear-related conditioned stimuli maintains fearful associations by precluding new, nonthreat-related learning, worry is maintained, in part, because it reduces the experience of uncertainty and individuals are unable to learn that uncertainty is not inherently threatening. Thus, exposure to uncertainty (e.g., acceptance of the inability to predict or control certain outcomes) may lead to more optimal functioning.

A number of studies suggest that worry may function to diminish internal distress (similar to the proposal made above regarding uncertainty, which seems to be distressing to individuals with GAD). For instance, research has demonstrated that self-report of the use of worry to distract from more distressing topics was the only reason for worrying that reliably distinguished participants with GAD from subclinical cases (Borkovec & Roemer, 1995; Freeston et al., 1994). Experimental evidence suggests that worry does in fact successfully reduce distress in the short-term. Speech-phobic participants who worried before imagining giving a speech did not show increased heart rate during imaginal exposure, in contrast to those who relaxed before exposure (Borkovec & Hu, 1990). Similarly, nonclinical participants who worried after exposure to a gruesome film reported less anxiety after the film than did those who engaged in imaginal rehearsal of the film after exposure to it (Wells & Papageorgio, 1995).

In contrast to other anxious states, neither chronic nor state worry is associated with increased sympathetic activation; instead, both are associated with reduced autonomic flexibility (Hoehn-Saric & McLeod, 1988; Connor & Davidson, 1998). That is, chronic and state worry are associated with a restricted range in autonomic responses (associated with decreased vagal tone; Lyonfields, Borkovec, & Thayer, 1995). Although this reduced autonomic variability is associated with several negative

characteristics (e.g., reduced flexibility in attention and affective regulation; Thayer, Friedman, Borkovec, Johnsen, & Molina, 2000), the short-term effect of diminished activation is likely to be negatively reinforcing, increasing the frequency of worrisome responding. This hypothesized function of worry (as avoidance of internal distress) is further supported by findings that GAD is associated with chronic tension, as well as vigilance and scanning symptoms rather than the increased autonomic symptoms found with all the other anxiety disorders (Brown et al., 1994; Marten et al., 1993).

We conducted a preliminary study to directly test the proposed association between avoidance of internal distress (i.e., experiential avoidance) and chronic worry and GAD (Roemer & Orsillo, 2001). A trait measure of experiential avoidance (the Acceptance and Action Questionnaire; Hayes et al., 2001) was administered, along with a trait measure of worry (the Penn State Worry Questionnaire, PSWQ; Meyer, Miller, Metzger, & Borkovec, 1990) and a self-report measure of GAD (which includes scales for distress and interference; GAD-Q-IV; Newman, Zuellig, Kachin, & Constantino, 2001) in a questionnaire study conducted at the University of Massachusetts at Boston. One hundred women, ranging in age from 18 to 49 years, completed all three measures. Experiential avoidance was significantly correlated with levels of trait worry ($r = .36, p < .001$) and level of distress associated with GAD symptoms ($r = .48, p < .001$), as well as interference of GAD symptoms in daily life ($r = .50, p < .001$). In a regression equation predicting self-ratings of GAD symptom interference in daily life, the AAQ significantly improved the model when it was entered as a second step, following the PSWQ ($R^2\text{change} = .17, p < .001$). These findings provide support for the proposed role of experiential avoidance in GAD.

These data taken together suggest that the most striking form of avoidance in GAD may be experiential; that is, individuals with GAD may be strategically and/or automatically avoiding unpleasant internal experiences by worrying about multiple future events. Ironically, worry itself becomes an unwanted internal experience, prompting attempts to avoid it, which may paradoxically increase its frequency (Wells, 1995; Roemer & Borkovec, 1993; but see Purdon, 1999, for a review of inconsistencies in this literature). In this way, individuals with GAD are trapped in a cycle of experiential avoidance, perpetuating

negative internal experience through their attempts to end this experience.

The detrimental, maintaining effects of experiential avoidance are evident at several levels in the phenomenon of GAD worry. Attempts to control or stop worry are likely to be ineffective and may paradoxically increase worrisome thoughts or negative emotions associated with those thoughts, as the literature on the experimental effects of thought suppression suggests (e.g., Purdon, 1999; Roemer & Borkovec, 1993, 1994; Wegner, 1994). In addition, because worry itself serves an avoidant function, it may interfere with successful emotional processing and maintain threatening meanings over the long term (Borkovec, 1994). In the study described above, although worrying before phobic imagery reduced initial heart rate response to an imagined speech, there was some evidence that it interfered with habituation to repeated presentations of the image (Borkovec & Hu, 1990). Similarly, worrying after exposure to a gruesome film reduced anxiety initially, but led to significantly increased intrusions over the next few days, compared to imaginal rehearsal of the film (Wells & Papageorgio, 1995). As Foa and Kozak (1986) note in their seminal paper on emotional processing, successful emotional processing requires functional exposure to feared cues to access the fear network (which includes response as well as stimulus elements). Factors that reduce responding (such as distraction) will be preferable in the short term but will interfere with long-term change. Worry seems to be such a factor, suggesting again that successful change will require functional exposure (rather than experiential avoidance) to facilitate emotional processing.

The Verbal-Linguistic Nature of Worry

Another aspect particular to worry is relevant to the integration of conceptualizations of worry with acceptance-based approaches to treatment. Worry has been found to be primarily verbal-linguistic (rather than imaginal) in nature (Borkovec & Inz, 1990; Freeston, Dugas, & Ladouceur, 1996). Abstract, verbal activity is less closely tied to physiological responding (Vrana, Cuthbert, & Lang, 1983), which may explain why worry is not associated with sympathetic activation (Borkovec, 1994). Verbal activity has the advantage of allowing the individual to rehearse possibilities without (physiologically) experiencing the full impact of hypothetical catastrophes. However, the disjunction between mental content and experience

may disrupt the informative feedback an individual can obtain from his or her environment. In fact, verbal, rule-governed behavior (i.e., behavior that is initiated and maintained by verbal specification of contingencies as opposed to direct contact with contingencies; see Hayes, Strosahl, & Wilson [1999, chapter 2] for a more extensive discussion of rule-governed behavior). is particularly resistant to environmental contingencies and perseveres even in the face of disconfirming evidence (Hayes & Ju, 1998). This raises the possibility that attempts to alter cognitions among individuals with GAD, in the absence of techniques aimed at increasing attention to and awareness of actual experience (i.e., both internal and external cues in the present moment), may perpetuate this separation between perception and experience. Because most forms of cognitive therapy, such as those used in existing treatment outcome trials for GAD, include behavioral experiments to test cognitive predictions, in addition to self-monitoring techniques and other behavioral/experiential elements, no data exist regarding whether a solely cognitive intervention would be beneficial for individuals with GAD. We propose that the verbal-linguistic nature of worry (and its apparent role in the experientially avoidant function of worry; see Borkovec, 1994), coupled with research on rule-governed behavior, suggests a need to emphasize actual experience, rather than just cognitive reactions, in the treatment of GAD. This could include traditional behavioral experiments and exposure techniques, but mindfulness and acceptance techniques (discussed further below) may particularly facilitate this goal (e.g., Hayes, Strosahl, et al., 1999).

Behavioral Restriction in GAD

As noted above, although GAD is perhaps most associated with experiential rather than behavioral avoidance, limits in behavioral action do seem to play an important role in the disorder as well. Individuals with GAD engage in repetitive verbal activity, generating possible negative future outcomes while being vigilant to any cues of potential threat. This activity does not seem to result in successful, concrete problem-solving, however, and individuals with GAD often report a pattern of procrastination (Borkovec et al., 1999; Stöber, 1998). Further, worry slows decision-making speed (Metzger, Miller, Cohen, Sofka, & Borkovec, 1990). As Borkovec and colleagues note, individuals with GAD, with their chronic apprehension of potential future threat, seem to be faced with

repeated fight or flight responses without any fighting or fleeing behaviors available. As such, they are characterized by restrictions in their behavioral activity, worrying about possible future catastrophes but not necessarily moving toward either their desired or their feared outcomes. As noted earlier, these individuals are not inactive; they often engage in excessive, nervous activity. However, their activity does not seem geared toward solving problems, facing fears, or pursuing desired activities.

Thus, techniques that promote active problem-solving for those concerns that can be addressed practically (Craske, Barlow, & O'Leary, 1992; Ladouceur et al., 2000), as well as interventions that involve exposure to worrisome cues and engagement in desired activities, may be beneficial in treating GAD. Such approaches may have been overlooked in the past in part because avoidance is not in a circumscribed domain as it is with other anxiety disorders (e.g., Butler et al., 1987). Also, the tendency for outcome studies to focus on presenting symptoms, rather than broader domains of functioning and life satisfaction, may have detracted attention from the proposed restricted range of instrumental behaviors among individuals with GAD.

Acceptance-based Treatments

Parallel to the GAD-specific evidence suggesting that we may need to move beyond traditional cognitive-behavioral approaches to this disorder, evidence has emerged in other areas of psychopathology and human functioning suggesting that the primarily change-based emphasis of cognitive-behavioral therapies may be limited and may, in fact, have unintended detrimental consequences. In the area of substance abuse (Hayes, Strosahl, et al., 1999; Marlatt, 1994), couples distress (Cordova & Jacobson, 1993), trauma (Follette, 1994), depression (Teasdale, Segal, & Williams, 1995), schizophrenia (Hayes, 1999), and borderline personality disorder (Linehan, 1993a, 1993b), behaviorally oriented theorists have been advocating renewed attention to the importance of acceptance in the course of successful psychotherapy. This concept certainly is not new; it has been highlighted across theoretical traditions in modern psychology (e.g., Greenberg & Safran, 1987; Rogers, 1961) and has been a characteristic of eastern philosophies for centuries (e.g., Hanh, 1976; Kabat-Zinn, 1994). Recent theorists have added the emphasis on integrating acceptance and change, targeting this dialectic in therapy (Linehan, 1993a).

Although ideas from all of the above conceptualizations inform the proposed integrative model and treatment, Hayes's model of experiential avoidance is most directly relevant. Hayes and colleagues (Hayes, Wilson, Gifford, Follette, & Strosahl, 1996; Hayes, Strosahl et al., 1999) have proposed that much of human difficulty stems from attempts to control or diminish internal experience. Based on extensive basic research on rule-governed behavior (see Hayes, Strosahl, et al., 1999, for a review), these authors note that human learning is unique in that bidirectional relationships between stimuli are learned. In other words, an individual who has a negative emotional response to an external stimulus, and subsequently thinks about the stimulus, will develop a negative emotional response to the thoughts and will experience the thoughts in the presence of both the emotional response and the stimulus in the future. This concept is similar to Lang's (1985) associative fear network. In this way, responses (both cognitive and emotional) become cues in and of themselves, prompting efforts at avoidance. A similar process has been highlighted with the construct of interoceptive conditioning in panic disorder; that is, physiological responses are thought to become fear-inducing cues themselves, prompting a treatment approach that incorporates exposure to these responses (e.g., Craske & Barlow, 1993).

Hayes, Strosahl, et al. (1999) note that similar associations can be formed to verbal content. For instance, the word "anxiety" can come to elicit anxiety by association; thus words can come to take on threatening meanings despite their disconnection from actual experience. Through repeated experience with these bidirectional associations between thoughts, feelings, and external stimuli, a range of internal experiences can come to signal threat. A recent study found that individuals with GAD developed conditioned autonomic responses to colored stimuli that had been paired with threat words, whereas nonanxious controls did not show the same conditioning effects (Thayer et al., 2000). This suggests that fear-related words can lead to higher order fear conditioning for individuals with generalized anxiety.

These learning experiences, coupled with a human tendency to view thoughts and feelings as causes of behavior (e.g., "I didn't go to the mall because I was anxious" or "I don't go to parties because I'm afraid people don't like me"), may lead individuals to focus their efforts on attempting to avoid negative thoughts and feelings rather

than changing the contingencies in their environments that maintain their difficulties (Hayes, Strosahl, et al., 1999). These attempts are bound to be unsuccessful, however, as internal responses are not under this type of instrumental control and attempts to avoid thoughts and feelings are likely to have paradoxical effects. For instance, some studies have shown that experimental instructions to suppress a target thought can result in subsequent increased frequency of that thought (e.g., Wegner, 1994). In fact, in invoking the rule to avoid *X*, the individual must cue the very thing he or she is trying to avoid (Hayes et al., 1996). Also, the strategies employed to avoid internal experience may bring with them a host of additional negative consequences (e.g., substance use; Hayes et al., 1996). In addition, an exclusive focus on avoiding emotions likely interferes with the functional value of emotions as important informational cues and action tendencies (Greenberg & Safran, 1987).

Hayes, Strosahl, et al. (1999) suggest that in order to alter the detrimental behavioral patterns motivated by experiential avoidance, clients should be introduced to the problems inherent in attempts at emotional or cognitive control, and a stance of acceptance and willingness should be practiced instead. Acceptance is defined as being "experientially open" to the reality of the present moment rather than being in a state of either belief or disbelief (or judging what is fair or unfair). This allows for a focus on present-moment contingencies and reduces reliance on verbal rules that detract from experience and flexibility. They further advocate a focus on valued directions to assist clients in switching from attempts to control the uncontrollable to strategies that allow for action in valued areas of life (e.g., marital/ couples/intimate relations, education/ personal growth and development, health/ physical well-being). Hayes et al. have developed an integrative treatment based on these principles called acceptance and commitment therapy (ACT). ACT is a behavioral treatment designed to target three therapeutic goals: (a) reducing the use of strategies aimed at avoiding private events, such as thoughts, feelings, memories, or bodily sensations; (b) decreasing the client's literal response to their own thoughts (e.g., recognizing that having the thought, "I'm hopeless," does not mean that the person's life truly is hopeless); and (c) increasing the client's ability to make and keep commitments to behavior change, based on his or her own values. These goals are accomplished by encouraging the client to shift from

attempting to control private events to working toward behavior change. Specifically, clients are encouraged to identify valued directions and goals in their lives and to commit to actions that are consistent with these values.

Two experimental, analogue studies provide support for the conceptual basis of this treatment. Hayes, Bissett, and colleagues (1999) offered a 90-min acceptance-based intervention or a coping skills, control-based intervention to college students before they participated in a cold pressor task. Participants in the acceptance-based condition tolerated the cold pressor task significantly longer than the control-based group. Similarly, Heffner and colleagues (2000) conducted a study comparing the efficacy of an acceptance versus a control-oriented rationale (breathing retraining) before a carbon dioxide (CO₂) challenge in a sample of highly anxious females. Participants in the acceptance condition showed less avoidance behavior, reported less subjective distress during the challenge, and were more willing to return for another CO₂ study than participants in the control and no-instruction conditions. Outcome studies have been similarly encouraging: an earlier version of ACT was found to be as effective as cognitive therapy in the treatment of depression (Zettle & Rains, 1989), and a brief ACT intervention resulted in a 48% decrease in rehospitalization of individuals with schizophrenia over 4 months (Hayes, 1999). ACT is also currently being explored as a treatment for polysubstance-using clients (cited in Hayes, Strosahl, et al., 1999). Particularly promising are the results of an effectiveness study: therapist training in ACT was associated with improved outcomes for clients with a diverse range of presenting problems (Strosahl, Hayes, Bergan, & Romano, 1998). These findings, coupled with promising preliminary data from other approaches incorporating acceptance (e.g., Linehan, Kanter, & Cantois, 1999; Linehan, Tutek, Heard, & Armstrong, 1994), suggest that acceptance-based strategies may be beneficial in the treatment of a range of disorders. However, no dismantling studies have been conducted to date, so we cannot be certain that these methods make a unique contribution to outcome.

The Role of Mindfulness in Treating Anxiety

One technique closely associated with the concept of acceptance, and perhaps a central first step in this process, is that of mindfulness. Mindfulness is a form of awareness that stems from eastern traditions and has been defined as “keeping one’s consciousness alive to the present reality”

(Hanh, 1976, p. 11). Linehan (1994) describes the use of mindfulness techniques as a way of integrating acceptance into change-based psychotherapies, emphasizing the non-judging, nonevaluative nature of mindful attention, as well as its association with controlled (i.e., intentional), rather than automatic, processing. Mindfulness has been proposed as a common factor across different therapeutic orientations, as it is associated with developing an awareness of alternative perspectives and detaching from one’s own habitual way of responding (Martin, 1997). As such, it may be an important element in altering habitual patterns of worrisome responding.

In addition to its association with the overall goals of therapy, mindfulness is specifically associated with relaxation techniques—a common element across a number of treatments for generalized anxiety that is considered an essential component by many in the field (e.g., Borkovec & Ruscio, 2001). Mindfulness is a central aspect of meditation-based techniques, many of which have been found to be efficacious in stress reduction. Kabat-Zinn and colleagues (1992) found that an 8-week group intervention based on mindfulness meditation led to significant reductions in anxiety and depression among individuals meeting criteria for generalized anxiety and panic disorders, which were maintained at 3-year follow-up (Miller, Fletcher, & Kabat-Zinn, 1995). Meditation has been associated both with reductions in tension and anxiety and with increases in available affect (Carrington, 1993). Similarly, in their review of controlled studies of stress-management interventions, Lehrer and Woolfolk (1993) suggest that meditation (mindfulness)-based techniques may be most effective in reducing the cognitive component of anxiety. Given the predominance of worrisome thinking among individuals with GAD (e.g., Borkovec & Inz, 1990), a treatment element that particularly addresses cognitive anxiety may be particularly important.

In addition to this empirical support for the utility of mindfulness techniques in treating anxiety, conceptual links between GAD and mindfulness exist. As noted earlier, GAD is characterized by a chronic focus on potential events in the future, and GAD worry seems to serve an experientially avoidant function. Thus, individuals with GAD are habitually responding to nonexistent perceived threats, rather than focusing on present moment experience.¹ Mindful focus on present-moment experience provides an alternative response that may facilitate adaptive responding (Borkovec et al., 1999). Mindfulness could

theoretically counter the detachment between external contingencies and internal experience that worry and other types of verbal activity seem to promote (e.g., Borkovec, 1994; Hayes, Strosahl, et al., 1999). Awareness of present-moment experience and attention to the cues, responses, and contingencies in the present can set the stage for replacing habitual patterns of responding with intentional, flexible ways of responding that are chosen rather than automatic. In fact, the monitoring techniques common across cognitive-behavioral treatments can be construed as a type of mindfulness exercise that serves just such a purpose (Borkovec & Roemer, 1994; Martin, 1997).

Mindfulness approaches have recently been incorporated in several cognitive-behavioral treatments: for preventing relapse in depression (Teasdale et al., 1995) and substance abuse (Marlatt, 1994), as part of a comprehensive treatment for borderline personality disorder (Linehan, 1993b), and as part of the ACT treatment approach described above (Hayes, Strosahl, et al., 1999). In fact, Borkovec (e.g., Borkovec et al., in press) identifies a focus on increasing “present-moment focus of attention” as an important element of his current cognitive-behavioral treatment for GAD. A recent study supports the proposal that mindfulness training can alter habitual ways of processing information (Williams, Teasdale, Segal, & Soulsby, 2000). Recovered depressed individuals who continued to show a tendency toward overgeneral autobiographical recall (a depressive characteristic commonly found resistant to change despite symptom reduction) were treated with mindfulness-based cognitive therapy and subsequently demonstrated a reduction in overgeneral recall following treatment. The authors argue that attention to present-moment detail alters avoidant styles of processing, an effect that would be similarly beneficial for generally anxious individuals given their habitually avoidant styles of attending to information (Matthews, 1990).

The Importance of Action: Introducing Positive Control of Behavior

As noted above, Linehan (1993a, 1994) and others (e.g., Hayes, Jacobson, Follette, & Dougher, 1994) have stressed the importance of balancing acceptance and change approaches in psychotherapy. Individuals with GAD seem to be primarily motivated by negative reinforcement. Their worry is thought to help them superstitiously avoid

potential negative outcomes and reduce their somatic distress; however, it also increases subjective distress, prompting attempts to avoid worry itself. Attempts to control internal experience are largely ineffective, and verbal behavior appears to have a limited impact on reducing negative private events (Hayes, Strosahl, et al., 1999).

However, this does not mean that an individual cannot exert any control over his or her life or that rule-governed behavior cannot be adaptive. As Hayes, Strosahl, et al. (1999) note, rule-governed behavior is particularly useful in guiding behavior that will increase the likelihood of long-term positive consequences, as the reinforcing properties of consequences that are not temporally contiguous to action are weak in the absence of verbal mediation. Therefore, increased attention to long-term positive goals can assist individuals in making present-moment choices that increase the chances of long-term desired outcomes.

This may be a particularly useful technique for individuals with GAD given the restriction in certain types of behavior that characterizes this disorder. Attending to desired outcomes provides an alternative coping strategy to the constant monitoring of potential disasters that characterizes GAD. Behavior change is more effective when it includes the introduction of desirable alternative ways of coping rather than solely focusing on decreasing the frequency of less desirable ways of responding (Nemeroff & Karoly, 1990). In addition, given that GAD is characterized by an attentive bias to threat (Matthews, 1990) and a tendency to overestimate risk (Butler & Matthews, 1987), repeated focus on desirable outcomes may promote a shift in this negative information-processing bias by making positive outcomes more salient and accessible.² Finally, this type of goal directed action is likely to improve adjustment more broadly than simple symptom reduction techniques. Below we will discuss how Hayes and colleagues' values approach can be adapted for the particular presentation of GAD and integrated with other techniques shown to be beneficial in treating this disorder.

Overlap Between Models and Treatment of GAD and Acceptance Techniques: Setting the Stage for Integration

The above literature reviews highlight several areas of overlap between conceptualizations of GAD and the rationale for mindfulness/acceptance based concepts and methods, suggesting the potential applicability of these approaches to the conceptualization and treatment of

GAD. Generalized anxiety disorder is characterized by experiential avoidance: worry seems to be maintained because it reduces somatic activation in the short term. However, this causes threatening meanings to be maintained, and worry itself becomes an unwanted internal experience that prompts attempts at avoidance. Therefore, approaches that emphasize nonavoidance of internal experience are likely to reduce the negative spiral proposed to characterize this disorder (e.g., Borkovec, 1994). Further, the verbal-linguistic nature of worry (e.g., Borkovec & Inz, 1990), which may underlie its proposed experientially avoidant function, corresponds closely with Hayes and colleagues' work on the difficulties associated with rule-governed behavior (e.g., disjunction from environmental contingencies), suggesting similar treatment approaches may be beneficial. Also, the future-focused nature of worry suggests that training in present-moment, mindful awareness may provide a useful alternative way of responding for individuals with GAD. Finally, a focus on desired action and choice is likely to decrease deficits in problem solving and decision-making and increase positive control of behavior (Borkovec et al., 1999).

The conceptualization presented above has led us to begin to integrate elements of existing cognitive behavioral treatments for GAD (e.g., Borkovec & Roemer, 1994; Borkovec et al., in press; Craske et al., 1992) with elements of acceptance based treatments such as Hayes, Strosahl, et al.'s (1999) ACT and Linehan's (1993b) dialectic behavior therapy in our treatment of GAD. Our approach targets habitual responding and encourages mindfulness, acceptance of internal experience, and mindful action as a replacement for the habitual restrictions in action that accompany worry. Because GAD is characterized by habitual, stuck patterns of responding across domains (cognitive, somatic, and behavioral; Borkovec, 1994), the treatment incorporates multiple elements that target each domain (similar to Borkovec et al., in press). We outline the components of our current treatment protocol below; however, this treatment is still under development, so the description is preliminary.

Psychoeducation. This component addresses traditional cognitive-behavioral psychoeducation regarding components of anxious responding, the fear-maintaining effects of avoidance, and the utility of early cue detection and repeated practice of alternative ways of responding (Borkovec & Roemer, 1994; Craske et al., 1992), as well as

education regarding the function of worry (e.g., Borkovec, 1994), the function of emotions (e.g., Linehan, 1993b), the difficulties of emotional control (e.g., Hayes, Strosahl, et al., 1999), and the utility of identifying valued directions to guide choices and decision making (Hayes, Strosahl, et al., 1999). Thus, this component targets the habitual nature of worry as well as beliefs in the utility of worry and the importance of controlling internal experience (Wells, 1995) that characterize individuals with GAD. In addition, the potential utility of behavioral action in the face of worry is introduced, setting the stage for later interventions.

Mindfulness, Early Cue Detection, and Monitoring. This component combines traditional cognitive-behavioral monitoring and mindfulness techniques to heighten awareness of patterns of anxious responding (e.g., Borkovec & Roemer, 1994; Craske et al., 1992). This component lays the foundation for implementing alternative ways of responding to worrisome cues and also provides evidence for the concepts presented in psychoeducation. In addition, these techniques highlight cues to be used in the subsequent mindful action component in order to facilitate emotional processing, flexible ways of responding, and new learning that will challenge overlearned fearful associations. Also, developing mindful attention and awareness can counteract the habitual avoidant, future-focused attention that is characteristic of individuals with GAD.

Relaxation/Mindfulness Techniques. This component includes multiple forms of relaxation, including progressive muscle relaxation (Bernstein, Borkovec, & Hazlett-Stevens, 2000), diaphragmatic breathing, and brief mindfulness exercises (e.g., Linehan, 1994), to strengthen the habit of nonanxious responding and increase present-moment focus and awareness. These strategies are presented as alternative ways of responding that help loosen habitual patterns; care is taken to discourage their use as ways of avoiding distressing internal experience. In addition, the processes of "noticing and letting go" in progressive relaxation and "willingness" in mindful attention are learned through experience and practice. These skills are contrasted with typical habits of avoiding and pushing away, and clients are encouraged to use these more accepting responses when confronted with anxiety-provoking internal stimuli.

Mindful Action. This component integrates aspects of other established behavioral treatments aimed at increasing effective action in response to apparent difficulties. It includes: problem-solving for practical problems (e.g., time management, assertiveness difficulties; Craske et al., 1992; Ladouceur et al., 2000), valuing for determining overarching goals to facilitate decision-making (Hayes, Strosahl, et al., 1999), and imaginal and in vivo exposure and behavioral rehearsal to promote approaching rather than avoiding fear-associated cues. Exposure to fearful imagery, rather than worry itself, is used (similar to Borkovec et al., in press; Craske, 1999; Craske et al., 1992) in order to minimize the experiential avoidance thought to be associated with worry (and other verbal-linguistic activity). As with other behavioral interventions, attention is paid to reducing subtle avoidance behaviors such as excessive checking or seeking reassurance. This component, in conjunction with the three previous components, provides an opportunity for accessing fearful associations and incorporating new, alternative perspectives (Foa & Kozak, 1986). Although traditional exposure techniques are used, the focus is different in that clients are encouraged to take action consistent with valued areas of their lives regardless of fears, rather than to continually approach situations in order to ultimately reduce their fear. In many instances, traditional exposure (both in vivo and imaginal) may be quite comparable in that clients are engaging in treatment because they value engaging with the feared stimulus. However, consistent with ACT (Hayes, Strosahl, et al., 1999), we feel that it is important to make a very explicit distinction between exposure to reduce anxiety and exposure because it is in accord with one's values. As reviewed above, actions aimed solely at the reduction of anxiety and worry are seen as related to the perpetuation of the cycle of anxious responding (Wells, 1995).

Current Status and Future Directions

This integrative conceptualization and the resulting treatment are in the initial development stages. We have conducted an initial pilot of an early version of our protocol with a group of four generally anxious individuals who presented for treatment at an anxiety disorders clinic in Boston (Orsillo, Roemer, & Barlow, 2001). Two clients demonstrated substantial reduction in anxious and depressive symptoms following the 10-week protocol, while the third showed modest improvement. The fourth client missed several sessions, and subsequently did not

display symptom improvement. Perhaps more interesting than the demonstrated symptomatic reduction were the substantial life changes made by all four group members. Clients made significant job and relationship changes over the course of treatment, and all commented that the values and acceptance elements of treatment were particularly beneficial.

Although the current theory and research on GAD make a strong case for the integration of mindfulness and acceptance techniques into the cognitive-behavioral treatment of GAD, basic science studies are needed to test the hypotheses that experiential avoidance underlies chronic worry and that mindfulness and acceptance techniques effectively reduce this form of avoidance. Additionally, more research is needed to expand and revise our protocol and test its efficacy on symptoms, associated features (e.g., cognitive and emotional avoidance), and quality of life. If acceptance and mindfulness treatments accrue evidence of efficacy in the treatment of GAD, process and dismantling research will ultimately be needed to explore mechanisms of change and to determine if the acceptance and mindfulness elements make a unique contribution to outcome.

NOTES

1. The nonpresent-moment nature of worry is supported by a study comparing narrative analysis of streams of thought during experimentally induced worry and neutral thinking (Molina, Borkovec, Peasley, & Person, 1998). Worrying thought was characterized by significantly fewer present-focused statements and less attention to environmental cues than neutral thinking.

2. In fact, one study found that when chronic worriers were asked to list reasons a negative outcome would not happen, their estimates of likelihood of the event decreased, suggesting these information processing styles can be modified by attentional shifts (MacLeod, Williams, & Bekerian, 1991).

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