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Acceptance and Commitment: Implications for Prevention Science

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Abstract

Recent research in behavior analysis and clinical psychology points to the importance of language processes having to do with the control of negative cognition and emotion and the commitment to valued action. Efforts to control unwanted thoughts and feelings, also referred to as *experiential avoidance*, appear to be associated with a diverse array of psychological and behavioral difficulties. Recent research shows that interventions that reduce experiential avoidance (EA) and help people to identify and commit to the pursuit of valued directions is beneficial for ameliorating diverse problems in living. These developments have the potential to improve the efficacy of many preventive interventions. This paper reviews the basic findings in these areas and points to some ways in which these developments could enhance the impact of preventive interventions.

Keywords

Acceptance; commitment; therapy; prevention

Behavior analysis and clinical and social psychology have been fruitful sources of the development of preventive interventions over the last 30 years. The value of reinforcement techniques was first clarified by behavior analysts (e.g., Kazdin, 1978). These techniques are now used in perhaps the majority of empirically supported preventive interventions (Biglan, 2003). Classroom-based curriculum interventions appropriated techniques from social psychology and from behavior therapy. For example, the first classroom-based smoking prevention program (Evans, Hansen, & Mittelmark, 1977; Evans et al., 1978) arose, in part, from the social inoculation theory of McGuire (1985). Similarly, refusal-skills training evolved from extensive clinical research on social skills training for socially anxious clients (e.g., Glaser, Biglan, & Dow, 1983). Other successful preventive interventions are direct adaptations of clinical interventions. Examples include the divorce adjustment counseling of Sandler and colleagues (Sandler, Wolchik, Braver, & Fogas, 1986); the Adolescent Transition Program (Andrews, Soberman, & Dishion, 1993; Irvine, Biglan, Smolkowski, Metzler, & Ary, 1999) and behavioral parenting skills training (e.g., Forgatch & DeGarmo, 1999; Webster-Stratton, 1998).

However, some important recent developments in these fields do not appear to have penetrated current prevention research. This paper describes these developments and indicates how they might enhance prevention research and practice.

Acceptance and Mindfulness-Based Clinical Interventions

Over the past 15 years, the focus has shifted within behavior therapy in the way clinicians address cognitions and emotions. Traditionally, cognitive behavior therapy focused on reducing the frequency and form of emotions and cognitions through procedures such as the refutation of troublesome beliefs. However, both recent meta-analyses (Longmore & Worrell, 2007) and component analyses (Dimidjian et al., 2006) have failed to support the importance of procedures that challenge cognitions. In part as a result, behavioral and cognitive therapies are shifting attention to ways of changing the context for thoughts and feelings and thereby the ways in which those thoughts and feelings function for the individual. The techniques focus on acceptance, mindfulness, and values-based behavioral persistence and change (Hayes, 2004). Examples include Dialectical Behavior Therapy (DBT; Linehan, 1993), Functional Analytic Psychotherapy (FAP; Kohlenberg & Tsai, 1991), Integrative Behavioral Couples Therapy (IBCT; Jacobson & Christensen, 1996) and Mindfulness-based Cognitive Therapy (MBCT; Segal, Williams, & Teasdale, 2002), among several others (e.g., Marlatt, 2002; Martell, Addis, & Jacobson, 2001; McCullough, 2000; Roemer & Borkovec, 1994; Roemer & Orsillo, 2002). These new methods seem particularly relevant to prevention because they involve broad models of how to live in a more effective way rather than a focus on elimination of pathology per se.

This paper focuses on one version of the new collection of behavior therapies, Acceptance and Commitment Therapy (Hayes, Strosahl, & Wilson, 1999). ACT (said as a single word, not as initials) is a useful model to explore because there is a growing body of evidence of its efficacy (Hayes, Luoma, Bond, Masuda, & Lillis, 2006; Hayes, Masuda, Bissett, Luoma, & Guerrero, 2004); several of its core processes have been studied in correlational, mediational, and component form (Hayes et al., 2006). It is based on an empirically substantial theory of language and cognition, Relational Frame Theory (Hayes, Barnes-Holmes, & Roche, 2001), and appears to affect a core psychological process—experiential avoidance—that may be relevant to preventing a broad range of problems.

Acceptance and Commitment Therapy

Several book-length descriptions of ACT exist (e.g., Dahl, Wilson, Luciano, & Hayes, 2005; Eifert & Forsyth, 2005; Hayes et al., 1999; Hayes & Strosahl, 2005; Luoma, Hayes, & Walser, in press) so here we provide a brief description only. Figure 1 illustrates the ACT model of intervention. ACT employs a set of metaphors and experiential exercises to assist people in getting out from under the rigid control of verbal rules that cause them difficulty. Its design consists of six strands, each with the goal of increasing psychological flexibility—the ability to contact the present moment more fully as a conscious human being and to change or persist in behavior when doing so serves valued ends.

Acceptance

Acceptance involves the active and aware embrace of private events occasioned by one's history without needless attempts to change the frequency or form of those events, especially when doing so would cause psychological harm. Acceptance in ACT is not an end in itself but a method of increasing values-based action. Clients contact the ways in which they try to control their experiences, the workability of those efforts, and the possibility that letting go of control and accepting uninvited experience may not bring on the catastrophe they have been working

so hard to avoid. This metaphor aptly illustrates the idea that efforts to control thoughts and feelings are unworkable:

Imagine yourself hooked up to a polygraph that can detect the slightest emotional arousal. You do not want to be aroused and we do not want you to be aroused. So, do not let any of those needles move! In fact, just to make sure you are motivated, I am going to put this gun to your head and I will pull the trigger if any needles move.

Most people can readily see how their efforts often function exactly this way. If they do not want a thought or feeling, that is exactly what they will have. By discussing their own control efforts supportively and gently, clients begin to see that, although rules work quite well in dealing with the world outside the skin, they do not work when applied to private experience. This helps people see that efforts at control are common—not unique. In the very nature of being a language-able human, we work to control our world. Moreover, the fact that people lock themselves into this struggle is not their fault. Our culture has taught them to use their language skills to control their world.

In ACT, people learn to study their experiences to see if their current efforts at control, in fact, work. It is important to note the emphasis on assessing one's own experience and not on trusting the therapist's statements. If the analysis of rule-governed behavior that underlies this work is correct, a person's problem is trying to follow others' rigid rules. This therapy is about loosening control in such a way that a client can respond more flexibly to an ongoing experience. To stress this, the therapist might say, "I'm not asking you to believe me. I'm asking you to examine your experience and see if your efforts to control really work in the long run."

One metaphor used to encourage acceptance is *The Bum at the Door*, which goes something like this:

Imagine you have decided to have a house party and to invite everyone in the neighborhood. You even put up a sign at your local grocery store. The party is starting out nicely, with many friends and some new acquaintances arriving in a jovial mood. Then, there is a knock at the door. It is the bum who lives in the dumpster down at the grocery store. You have the reaction you really don't want him there. You could simply close the door and lock it, but you'd have to stay there to let others in and keep him out.

Isn't there a sense in which you could—despite your irritation and embarrassment—welcome him in? Couldn't you—regardless of how you feel—say, "Come in. Make yourself at home. Have something to drink. Snacks are over here."

Of course, you may not like having to have him there. Yet maybe that feeling is just another bum at the door, and you can welcome him in too.

The ultimate goal of this process is to increase people's willingness to have thoughts, feelings, and other experiences they have been working hard to avoid. Clients work through exercises and metaphors that provide a context for experiencing their most common and troublesome thoughts and feelings without taking those experiences literally or trying to avoid or control them. A key indicator of success at this stage is whether a person continues to be willing to have feelings and thoughts, even strong and unpleasant ones.

Cognitive defusion

Cognitive defusion techniques attempt to alter undesirable functions of thoughts and other private events, rather than to alter their form, frequency, or situational sensitivity. That is, ACT attempts to change the way one *interacts with* or *relates to* thoughts by creating contexts in which their unhelpful functions weaken. There are scores of such techniques for a wide variety

of clinical presentations (Hayes & Strosahl, 2005). For example, one could dispassionately watch a thought, say it aloud repeatedly until only its sound remains, or treat it as an external observation by giving it shape, size, color, speed, or form. One could thank her mind for such an interesting thought, label the process of thinking (“I am having the thought I am no good”), or examine feelings and memories that occur while thinking it. Such procedures attempt to reduce the literal quality of the thought, weakening the tendency to treat it as what it refers to (“I am no good”) rather than what it is directly experienced to be (e.g., the thought that I am no good). The result of defusion is usually a decrease in believability of, or attachment to, private events rather than an immediate change in the frequency of these events.

Contact with the present moment

ACT promotes ongoing non-judgmental contact with psychological and environmental events as they occur. The goal is to have clients experience the world more directly so their behavior becomes more flexible and their actions more consistent with their values. They achieve this by allowing contact with what works to exert more control over behavior and by using language as a tool to note and describe events, not just to predict and judge those events. A sense of self, called “self as process,” is actively encouraged: the defused, non-judgmental, ongoing description of thoughts, feelings, and other private events.

Self as context

A behavior-analytic analysis of verbal behavior and the self (e.g., Hayes et al., 2001) points to three aspects of the self. The *conceptualized self* involves one's tendency to ascribe characteristics to oneself. Literality and fusion typically characterize this process. Since statements such as “I am good” and “I am male” have the same form, people tend to treat both as if they are literally true. Hayes et al. (1999) suggest that psychological distress arises when people take self-descriptions literally and are motivated to control them.

A second sense of self involves our ongoing experiences and our awareness of them, which plays an important role in guiding our own behavior. The tendency to suppress or avoid awareness of aspects of our experience can impair our ability to cope.

The third sense of self is as an observer. The therapist uses exercises to help people experience the sense in which, as the counselor might say, “the ‘you’ that you experience yourself to be is the same and unchanging throughout your life and across all of the pleasant and unpleasant experiences you have had.” There is a sense in which this “self” is a safe place from which to experience all wanted and unwanted experiences of life, since it remains unchanged. The therapist might ask, “So even when you are very anxious, isn't there a sense in which you are the same person as when you are lying in bed relaxed on a Saturday morning?” The ACT therapist tries to create a context in which clients experience this sense of self so they can begin to experience emotions, thoughts, and self-attributions as things that happen to them rather than as literal characteristics they possess and must control in order to be all right.

Values

If people abandon efforts to control, what will guide them through life? The ACT valuing strand helps people clarify what is important and what enables them to choose directions they want to take. Often ACT therapists begin therapy with a focus on this issue. They frequently contrast “where you want to go in life” with “your current struggle not to have bad feelings.”

Here too, the therapist reminds the client that, in keeping with acceptance of thoughts and feelings, *valuing* is not just a matter of having strong feelings about wanting to move in certain valued directions. It is instead a matter of consciously choosing to take action in valued directions—whatever thoughts and feelings accompany the action.

People learn to understand they can choose a course of action, even when they have many reasons why they cannot or should not pursue that action. In this sense, they are “free to choose.” One exercise involves helping people envision what they want their lives to represent by having them imagine how they would like people to remember them after they have died.

Another facet of this strand involves prompting the person to contemplate this conundrum: “Outcome is the process through which process becomes the outcome.” It means that, although the goals we set define outcomes we will work to achieve, doing so actually makes life about the *process* of pursuing those goals. From this perspective, the values we set define directions in which we want to move, and life is far more about the process of moving in those directions than reaching a goal. In this sense, we can distinguish values from goals. For example, if we articulate a value of having supportive relationships with other people, it implies something about the way we will behave over time; there is no sense in which we will achieve supportive relationships and having done so, be finished. The value defines a way of living, not an end.

A key exercise for this strand involves helping people clarify values in nine domains: 1. marriage/couples/intimate relationships; 2. family relationships; 3. friendship/social relations; 4. career/employment; 5. education/personal growth and development; 6. recreation/leisure; 7. spirituality; 8. citizenship; and 9. health/physical wellbeing. Having articulated valued directions for all chosen domains, people are then able to clarify goals to move them in those directions.

Committed action

This strand involves helping people commit to actions consistent with their own values. Unlike most other aspects of ACT, which focus on undermining the control of verbal rules (e.g., “I must not feel anxious”), this strand involves increasing the extent to which people behave under the control of verbal rules. However, the rules here describe the valued directions in which they want to move and they create these rules themselves.

An ACT metaphor, *The Monsters on the Bus*, illustrates well the concept of pursuing valued actions in the context of having unwanted thoughts and feelings.

Imagine you are a bus driver with a bus headed in a valued direction in your life. However, a bunch of really scary passengers gets on the bus. They are thoughts, feelings, bodily states, memories—all the ones that you really don't want. They are big, ugly, smelly, and scary. You make a deal with them. You don't want to see or hear them, but you tell them if they sit quietly and don't bother you, you will drive the bus where they want to go. At some point, you may decide to throw them off the bus, but notice when you do that, your bus isn't going anywhere. It turns out that they are strong and you can't get them off. So you go back to placating them. Whenever they say “Turn left!” you turn. The trouble is that your bus is not going where you want it to go.

The trick is, though, the only reason they have control over you is that you don't want to see or hear them. But the fact is they can't really harm you. They say they can; your mind tells you they can; but they cannot. They are mostly just words. Maybe—consider the possibility—all the effort you put into controlling these critters isn't needed—you can let them come on up and you can drive your bus wherever you choose to go.

Committing to the action that moves in a valued direction is likely to bring up the thoughts and feelings that have halted action in the past. The key question is, “Are you willing to do what would work to enhance your life and to have whatever thoughts, feelings, or memories arise

as you do it?" (Hayes et al., 1999). Willingness is not the same as wanting. A person may not want to do something they have said they would do. They can do it nonetheless.

The Efficacy of ACT

Two recent outcome reviews summarize results of randomized trials (Hayes, Masuda et al., 2004; Hayes et al., 2006), almost all of which have occurred since the year 2000. The studies address a broad range of problems, including substance abuse, chronic pain, anxiety, depression, psychosis, smoking, prejudice, worksite stress, employee burnout, diabetic self-management, adjustment to cancer, self-harm, obsessive compulsive disorder, trichotillomania, and epilepsy, among others. A meta-analysis of controlled outcome studies (Hayes et al., 2006) reported on 21 randomized trials of ACT. The average effect size (Cohen's *d*) was .66 at post treatment ($N = 704$) and .65 ($N = 580$) at follow-up (on average 19.2 weeks later). In studies involving comparisons between ACT and active, well-specified treatments, the effect size was .48 at post ($N = 456$) and .62 at follow-up ($N = 404$). In comparisons with wait list, treatment as usual, or placebo treatments, the effect sizes were .99 at post ($N = 248$) and .71 at follow-up ($N = 176$).

We will describe several studies to characterize more fully the nature of the current ACT outcome literature and to give some sense of the breadth of problems it successfully addresses. This breadth of application is a major reason for believing that the processes ACT targets may be of general relevance to prevention science.

In a randomized controlled trial focused on workplace stress management (Bond & Bunce, 2000), 90 workers at a media group (45 of each gender) received (by random assignment) an ACT protocol ($n = 30$; Bond & Hayes, 2002), a behavior-oriented Innovation Promotion Program (IPP) to encourage them to identify and change stressful events at work ($n = 30$), or a waitlist control ($n = 30$). Each intervention consisted of three half-day group sessions spread over 14 weeks. ACT demonstrated significantly greater improvements than the IPP and control groups in a general measure of stress and psychological health at post- and at three-month follow-up. Both interventions were equally effective compared to the wait list in increasing the propensity to take concrete action to reduce worksite stressors, even though the ACT condition did not target this explicitly. An increased acceptance of undesirable thoughts and feelings mediated the outcomes achieved by the ACT intervention but not by the IPP condition.

A study comparing ACT to Nicotine Replacement Therapy (NRT) for smoking cessation (Gifford et al., 2004) randomized 67 smokers either to NRT or to seven individual and seven group sessions of ACT. ACT had significantly better smoking cessation outcomes (35 vs. 15%) at one-year follow-up. A decreased need to avoid smoking-related thoughts and feelings in order to maintain abstinence mediated outcomes in the ACT group, passing all of Baron and Kenny's (1986) steps for mediation.

One study of opiate-addicted polysubstance abusers compared methadone maintenance alone to methadone maintenance with 16 weeks of either Intensive 12-Step Facilitation (ITSF) or ACT (Hayes, Wilson et al., 2004). ACT was associated with lower objectively assessed opiate and total drug use during follow-up than methadone maintenance alone, and with lower subjective measures of total drug use at follow-up. An intent-to-treat analysis provided further support for decreases in objectively assessed total drug use in the ACT condition. ITSF reduced objective measures of total drug use during follow-up but not in the intent-to-treat analyses. Most measures of adjustment and psychological distress improved in all conditions, but there was no evidence of differential improvement across conditions in these areas.

Burnout is common among drug and alcohol abuse counselors, which may be due in part to a tendency to experience and then seek to suppress negative attitudes about clients (Corrigan,

2002). Hayes, Bissett et al. (2004) reasoned that ACT training could help counselors accept their thoughts as just that, be more mindful of the automaticity of those thoughts, and thus experience them as less believable and recommit to their values in helping clients move forward. They randomly assigned counselors to receive a one-day workshop on ACT, on Multicultural Training (MT; the widely promulgated technology for reducing negative attitudes toward stigmatized groups), or on the biological processes involved in addiction (based on the common belief that stigma will decrease if it is understood that addiction is a biological disease). On a questionnaire measure of stigma, those in the ACT workshop improved significantly more than those in the biological education condition from pretreatment to three-month follow-up, but those receiving MT did not. Moreover, at follow-up, ACT recipients scored better than MT recipients did on a burnout measure. The degree to which ACT recipients *believed* stigmatizing attitudes about their clients mediated the improvements in the ACT condition but not in the other conditions.

Bach and Hayes (2002) evaluated a three-hour ACT intervention for hospitalized patients with hallucinations or delusions. By random assignment, 80 patients received either the brief ACT intervention or usual care. The ACT intervention focused on accepting—rather than trying to control—their hallucinations and delusions, mindfully viewing them as psychological events that come and go, and focusing on the behaviors needed to achieve valued ends. Those who received ACT had significantly lower rates of rehospitalization over four-month follow-up, but they did not have lower rates of symptoms. Among those receiving ACT and admitting symptoms, the rehospitalization rate was below 10%, but among those who denied symptoms it was 40%. ACT participants also showed much lower levels of literal believability of symptoms. Among those in usual care, those who admitted symptoms re-entered hospitals as frequently as did those who denied symptoms, and believability of symptoms did not change. None of the ACT participants who showed lower believability and admitted symptoms re-entered the hospital. The Acceptance and Commitment Therapy website (www.contextualpsychology.com) includes a list of empirical papers on the effects of ACT.

Foundation in a Basic Analysis of Verbal Behavior

From the standpoint of traditional mental health conceptions, as reflected in the DSM nosology, it might seem odd that a treatment procedure would have an impact on such a broad range of problems, particularly since many of these protocols are not extensive (e.g., three hours with psychotic individuals, six hours for burnout, etc.). The explanation provided by ACT researchers is that ACT targets key processes identified in basic behavioral research on language and cognition. This claim is crucial to the possibility that ACT may be a useful framework for improving our ability to prevent a wide array of problems. In the next section, we will review some of the evidence that shows the relationships among these behavioral processes and a wide variety of psychological and behavioral difficulties,

Analysis of a Fundamental Verbal Process: Experiential Avoidance

Experiential avoidance (EA) is the tendency to try to alter the frequency, form, or situational sensitivity of thoughts or feelings even when doing so causes behavioral difficulties (Hayes, Bissett et al., 1999). Based on clinical research and a growing body of basic research on human verbal behavior, the ACT/RFT analysis proposes that people are highly likely to try to avoid unpleasant thoughts and feelings as a natural generalization of their verbal problem-solving abilities to their psychological experience.

Relational Frame Theory (RFT; Hayes et al., 2001) views the core of human language and cognition as the learned ability to relate events arbitrarily, mutually and in combination, and to change the functions of these events based on those relational responses. For example, very young children learn that a nickel is larger than a dime in terms of physical size, but not until

later will the child develop the relational ability to apply arbitrarily the relation of comparative *value* to these coins, when the child will label a dime as “bigger” than a nickel. Because of this relational response, a dime comes to have a greater reinforcing function than a nickel does. In a 20-year literature spanning over 70 empirical studies, RFT researchers have shown that relational responding is a fundamental feature of language (e.g., Devany, Hayes, & Nelson, 1986; Lipkens, Hayes, & Hayes, 1993) that is learned (Barnes-Holmes, Barnes-Holmes, Smeets, Strand, & Friman, 2004; Berens & Hayes, 2007). They show that a wide variety of cognitive processes involves relational responding (Hayden, Barnes-Holmes, Barnes-Holmes, & Stewart, 2005) and, most importantly, relational responding transforms the functions of stimuli and alters other behavioral processes, such as operant conditioning or classical conditioning (e.g., Dymond & Barnes, 1995). For example, consider a person who learns a relational network between three arbitrary stimuli: $A < B < C$. If we now pair “B” with shock, “C” will elicit far more arousal than B, even though no one paired it with shock (Dougher, Hamilton, Fink, & Harrington, in press). Young children will not show such effects, because they first have to learn arbitrary comparative abilities (see Berens & Hayes, 2007 for experimental demonstration): they have to learn a nickel “is smaller than” a dime. Said in commonsense terms, these findings show that, when human beings learn to compare events, related events can change their functions, even if the comparisons are arbitrary and there is no direct basis for the resulting functions.

If RFT is correct, learned relational operants underlie important activities such as human problem solving (Hayes et al., 2001). Verbal problem solving involves rules such as “given this, if I do that, I will get X, which is good.” These rules are simple applications of “if...then” and comparative relations. In other words, we relate a current situation to what it would be like if we “do that” and we cognitively compare possible outcomes. We get rid of ants by putting out ant bait. We take a course to master a skill, which we think will land us a better job. We call a plumber to repair a burst pipe.

Because such relational skills are massively useful, once learned they become more and more dominant in behavioral regulation—the world as verbally constructed becomes the world in which humans live. ACT/RFT theorists have labeled the tendency for people to live in a verbally constructed world, while not noticing the role of verbal constructions in their experience of that world, as “cognitive fusion.” This domination is not without cost. Verbally regulated behavior tends to be less flexible, less modifiable by experience, and at times less effective than behavior shaped by experience (see Hayes, 1989 for a book-length review).

Unfortunately, when applied to private experiences, these same relational skills create problematic self-focused and self-amplifying loops. We will, for example, categorize emotions or thoughts into “good” and “bad” and will apply “if...then” relations to the regulation of these events, resulting in attempts to avoid negative thoughts and feelings. Feeling anxious, we may apply the formula, “If I just stay out of malls, I won't feel anxious.” Not liking how the behavior of others makes us feel we may fight with or stop speaking to people who bring on unwanted feelings. Thanks to cognitive fusion our *thoughts* about distress—not just the distress itself—become something to avoid. Unfortunately, efforts to suppress thoughts do not work. The overarching avoidance rule contains the very thought we are trying to suppress and thus evokes it (while simultaneously increasing its functional importance). Failing to control unwanted thoughts and feelings, we may drink or take drugs to avoid feelings. We may move away from, divorce, or even kill people who put us in touch with images, thoughts, or beliefs that we “just cannot stand.”

Efforts to control thoughts and feelings may work in the short run. Nonetheless, we may begin to constrict our lives as we attempt to avoid unwanted feelings. We can avoid anxiety by not going to malls, but we also can no longer shop. We can drink to control anxiety, but drinking

may lead to other problems. Indeed, life may come to be about not having unpleasant feelings. If avoiding malls works (even temporarily) to control anxiety, we might as well avoid everything that makes us anxious: stop going to public places, seeing our friends, or working. As avoiding anxiety uses up a greater portion of our daily activities, life becomes about not being anxious.

This line of thinking makes sense of data that have long been central to a prevention science perspective. When we consider the lifetime incidence of *any* DSM disorder, or the rates of physical abuse, divorce, sexual concerns, and prejudice, it is hard to conclude that psychological suffering and behavioral difficulties characterize only a small minority of human beings. Even such seemingly severe processes as entanglement with suicidal thoughts affect a majority of human beings at some point in their lives (Chiles & Strosahl, 2004). Hayes, Bissett et al. (1999) argue that, contrary to traditional nosological thinking, the ubiquity of human psychological suffering occurs because normal and essential human verbal abilities contain within them tendencies toward cognitive fusion, experiential avoidance, and psychological inflexibility. Although our verbal abilities are fundamental to our ability to control the world around us, they become counterproductive when applied to private experience.

Closely linked to EA is a lack of committed and effective action. If we take the stance that our life can go forward only with our emotional and cognitive life under control, it prevents our taking action. We can seek a new job only when we feel confident we can do the job successfully. We can attend school only when feelings of anxiety and panic no longer arise on the way to school. These kinds of rules can put behavior on hold indefinitely while awaiting change in historically produced private experiences.

Empirical Evidence Regarding Experiential Avoidance

Several studies show that experiential avoidance as a construct is distinct from other psychological constructs and is associated with a variety of psychological and behavioral difficulties. We review a number of these below.

Bond and colleagues (Bond, Hayes, Baer, & Orcutt, in preparation) explored the psychometric properties of measure of EA with a 10-item scale called the *Acceptance and Commitment Questionnaire II*. Example items are “I’m afraid of my feelings” and “Worries get in the way of my success.” They rated items on a seven-point scale, ranging from “never true” to “always true.” The researchers collected data from 2,226 participants. The alpha coefficient for the scale was .85; a factor analysis indicated that a single factor accounted for 43.70% of the variance, with all but one item loading above .40. There was no correlation with a measure of social desirability. The measure showed strong relationships with other measures of psychological functioning. Still, a confirmatory factor analysis, with items from the AAQII, the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961), Beck Anxiety Inventory (BAI; Beck, Epstein, Brown, & Steer, 1988), General Health Questionnaire (GHQ; Goldberg, 1978), Negative Affectivity, and each of the “Big Five” factors (Goldberg, 1993), showed the AAQII measured a construct distinct from those of the other measures. In other words, this measure of EA seems to be getting at a process distinct from the psychological processes and behavioral tendencies on which we have traditionally focused.

There is both correlational and experimental evidence indicating that EA contributes to diverse psychological and behavioral difficulties. Hayes et al. (2006) report a meta-analysis of the relationship between an earlier version of the AAQ and a wide variety of measures of psychological wellbeing including psychopathology (e.g., depression, anxiety, post-traumatic stress, and trichotillomania), stress, pain, and job performance. Collectively, the 32 studies reviewed involved 5,616 participants and 67 correlations between the AAQ and these outcomes. The weighted effect size of these relations was .42 (95% CI: .40-.44), showing that

this measure of ACT processes had a moderate relationship with psychological outcomes generally. Across eight studies, the AAQ correlated with the BDI .50 (CI: 0.46-.054). The average correlation with the GHQ (Goldberg, 1978) was .40 (CI: .34-.45) across three studies. More recent data from the Bond et al. study (in preparation) cited above showed that the AAQII correlated .48 or more with the three subscales of the Depression, Anxiety, and Stress. It correlated .75 with the BDI, .59 with the BAI, and .31 with the GHQ.

The research includes several longitudinal studies. For example, EA predicts PTSD symptoms over time in trauma survivors (Marx & Sloan, 2005). In a college student population, the AAQ predicted deterioration of quality of life measured a year later (Hayes, Strosahl et al., 2004). Bond and Bunce (2003) examined whether the AAQ predicted subsequent mental health and job performance among customer service employees. At Time 1, 647 people completed the AAQ, a job control measure, and measures of negative affect and locus of control. A year later, 412 participants completed measures of general health and job satisfaction. The authors then obtained records of participant rates of errors in entering computer data. The AAQ predicted mental health and computer errors a year later, even when controlling for other variables. Moreover, those who were high in acceptance and had higher levels of job control were particularly likely to have low levels of psychological problems and fewer computer errors.

Somewhat similar results exist for measures of thought suppression (Wegner & Erber, 1992; reviewed below), mindfulness (Baer, Smith, & Cochran, 2005), distress tolerance (Brown, Lejuez, Kahler, Strong, & Zvolensky, 2005), learned industriousness (Eisenberger, 1992), emotionally focused coping (Carver, Scheier, & Weintraub, 1989), emotional suppression (Kashdan & Steger, in press), and other measure of general acceptance (Baer et al., 2005). The ability to have discomforting feelings and thoughts and still take effective action seems to predict success for diverse aspects of human functioning. Exactly how these related processes interact is unclear. Some of these measures do include indices of acceptance (e.g., Carver et al., 1989). All appear to relate to EA and do not fully duplicate each other conceptually or empirically. For example, measures of EA function as mediators in studies in which measures of, say, thought suppression do not. We discuss this further below.

Growing evidence indicates that even relatively well-educated and successful populations entangle themselves in EA. For example, among college students, the percentage of those presenting with depression, suicidality, and personality disorders appears to have at least doubled within the last decade (Benton, Robertson, Tseng, Newton, & Benton, 2003). This increase appears to come from an increase in the number of distressed students controlling for levels of environmental stress (Erickson-Cornish, Riva, Cox-Henderson, Kominars, & McIntosh, 2000). Yet unpublished data show that among college students, it is possible to predict significantly psychological distress, healthcare visits, and dropouts across the college years by combinations of entering levels of EA and emerging life stressors (Hildebrandt, Pistorello, & Hayes, 2007). Furthermore, recent evidence shows that materialistic values are associated with diminished wellbeing, and that this relation is itself mediated by EA (Kashdan & Breen, in press).

There is less evidence regarding the relationship between EA and externalizing problems such as aggressive social behavior. The ACT/RFT theory suggests that people may be motivated to attack those who make them feel bad in an effort to reduce the feeling. Thus, people who call others “wrong,” “stupid,” etc. may be targets of aggression if their epithets fuse with the world. For example, due to fusion, to hear I am “stupid” is the same as *being* stupid. Tull, Jakupcak, Paulson, and Gratz (2007) studied whether EA has a role in the relationship between PTSD and aggression. They reasoned that those who experience trauma would be more likely to behave aggressively if they were experientially avoidant. They found a nine-item version of the AAQ mediated the relationship between exposure to trauma and self-reported aggressive

behavior. The study was limited as it was cross-sectional and relied on self-report measures. Greco, Lambert, and Baer (in press) found an adolescent version of the AAQ correlated .11 with teacher ratings of problem behavior in each of two samples. Forsyth, Parker, and Finlay (2003) found that EA was related to addiction severity in a sample of substance-abusing veterans.

Rigorous tests of the role of experiential avoidance in behavior come from experimental studies that reduce EA and then assess its impact on behavior. In a study of pain tolerance, Hayes et al. (1999) found an acceptance rationale and brief training in acceptance and defusion methods produced more pain tolerance than a pain control rationale drawn from CBT pain management. In a replication (Takahashi, Muto, Tada, & Sugiyama, 2002), a randomized controlled trial showed this effect depended on a combination of an acceptance rationale plus actual exercises that taught the new coping methods. A third study (Gutiérrez, Luciano, Rodríguez, & Fink, 2004) found acceptance and defusion methods particularly worthwhile when pain was severe.

A randomized laboratory experiment with 60 patients having panic disorder (Levitt, Brown, Orsillo, & Barlow, 2004) evaluated whether reducing EA would affect the tendency to panic. It compared effects of a brief instruction and exercise focused on accepting feelings to suppression and distraction conditions in response to a CO₂ gas challenge that induces panic-like symptoms. Acceptance instructions led to significantly less anxiety than did the other conditions during the gas challenge and to a greater willingness to participate in a second challenge. Similar results occurred with negative and intrusive thoughts. Marcks and Woods (2005) showed not only that EA exacerbated the impact of these thoughts but also that a brief acceptance and mindfulness intervention drawn from ACT reduced the psychological distress the thoughts cause.

Research by social psychologists also supports the idea that efforts to control unwanted thoughts and feelings can be problematic. Wegner and Erber (1992) found that instructions to suppress thoughts and verbal responses actually increased their occurrence. Wegner, Erber, & Zanakos (1993) found that, when people were asked to think of happy or sad events but not to have feelings associated with the events, they could not do so, under conditions of cognitive load (having to remember a nine-digit number). Wegner (1994) argues that these effects are because conscious efforts to control or suppress thoughts or moods require a person to be vigilant for any sign of those events. In a sense, one must have a thought or mood in order to control it.

A Diathesis-Stress Model of Experiential Avoidance

Evidence reviewed thus far seems to indicate that EA is a risk factor for diverse problems. Persons who are experientially avoidant are at greater risk for a wide variety of behavioral and physical health difficulties.

In part, this may come because the tendency to be experientially avoidant leads directly to those difficulties. However, we can also think of EA as a diathesis that makes people more vulnerable to a wide variety of stressors. A person prone to avoid unpleasant thoughts and feelings may lock into self-amplifying efforts to suppress such experiences when stressful events—whatever their nature—bring distress into their lives. Such a process could help account for why EA has a connection to so many different problems. Whether a struggle not to feel distress begins from failure in school, the loss of a loved one, or a difficulty on the job, the distress it engenders multiplies by efforts to control it. A number of studies support this idea.

In a recent study of mothers experiencing the distress of preterm birth, Greco et al. (2005) found that experiential avoidance mediated the relationship between the stress of having a premature birth and parental adjustment and trauma. This was true regardless of the degree of

social support or the temperament of the infant. In a series of studies, McCracken and colleagues (McCracken, 1998; McCracken & Eccleston, 2003; McCracken, Vowles, & Eccleston, 2004) found that a pain-specific version of the AAQ predicted adjustment in chronic pain patients more than did actual pain intensity or extent of injury. Greater acceptance of pain and willingness to act even when pain was present were associated with less pain-related anxiety and avoidance, less depression, less physical and psychosocial disability, more daily uptime, and better work status. Similar findings have been shown for the relationship between adult trauma and childhood sexual abuse (Marx & Sloan, 2002; Rosenthal, Rasmussen-Hall, Palm, Batten, & Follette, 2005), combat violence (Plumb, Orsillo, & Luterek, 2004), interpersonal violence (Orcutt, Pickett, & Pope, 2005) and several others forms of stress (Marx & Sloan, 2005; Plumb et al., 2004). Tull et al. (in press) also showed that EA interacted with trauma exposure to heighten aggressive behavior.

It is not just that EA moderates these effects. It also seems to mediate them in the sense that it is part of the causal path translating stressors into poor outcomes. People may learn EA directly through modeling, family processes, poor parenting patterns, and so on. Nevertheless, stress itself may create the conditions for EA to be established.

Through accident, biology, or social disadvantage, some individuals must face higher levels of psychological pain and distress than others do. When encountering biological stressors like physical pain or injury (McCracken et al., 2004), temperamental factors like high emotional responsiveness (Sloan, 2004), or psychosocial stressors like the violence faced by inner city youth (Dempsey, 2002; Dempsey, Overstreet, & Moely, 2000), people may be more likely to learn EA as form of coping in order to experience relief on a short-term basis.

However, EA as a form of coping has longer-term negative effects regardless of its initiating cause. This is because of its repertoire-narrowing impact and because many methods of EA (e.g., substance use, social withdrawal, or high-risk sexual behavior) produce negative social, psychological, and physical effects. As a result, EA as a coping strategy often increases stress over the long term. Patterns of EA and cognitive fusion thus are ready to create pathological self-amplifying cognitive and emotional processes in which efforts to control or suppress unwanted thoughts and feelings only worsen the thoughts and feelings and *increasingly* motivate ineffective and harmful control strategies such as substance use and aggression. In this way, the psychological diathesis of EA appears to interact with stress from whatever source (violence, loss, life challenges, pain, racism, etc.) to create higher levels of behavioral and psychological difficulties. These two processes—stressful events making EA more likely, and EA leading to poor outcomes (including more stress) regardless of its source—define what is necessary statistically for EA to serve as a mediator of the impact of stressful events on pathology. Various studies (e.g., Kashdan, Barrios, Forsyth, & Steger, 2006) have found exactly that.

Further empirical evidence is necessary to clarify the extent to which EA is a risk factor for problems regardless of levels of stress and the extent to which EA is a diathesis making the development of diverse problems more likely when one encounters stress. If the model above is correct, however, the self-amplifying nature of EA means that even lower level of stress can put individuals at risk in the context of EA.

The relationship to other models of coping—Greco et al. (in press) discuss the relationship of the EA construct to other conceptualizations of stress and coping. They point out that most existing approaches to coping do not directly assess people's acceptance of the experiences associated with stress. Rather they assess the ways in which people try to cope and whether they engage in active efforts to solve problems or to avoid distress through distraction, positive thinking, thought replacement, or self-talk. Further, they assess passive-avoidant

reactions such as withdrawal. However, all these measures focus on attempts to *regulate or control* private events and therefore do not directly assess people's *willingness* to have these experiences. In other words, the specific approaches people use in reaction to distress may be less important than their willingness to experience private events fully without efforts to minimize them. In line with this view, EA seems to mediate the impact of a variety of coping and emotional regulation processes, including cognitive reappraisal, controllability of stressors, anxiety sensitivity, and emotional response styles, both correlationally and longitudinally (Kashdan et al., 2006).

These points are also relevant to the theory of primary and secondary control. Rothbaum, Weisz, and Snyder (1982) propose that, besides making efforts to control their environment, people engage in “secondary” control in which they bring their thinking in line with the realities of their situation, by characterizing a situation as beyond their control, or involving luck or powerful others. In general, perceived control is associated with greater psychological and physical wellbeing (e.g., Seeman, 1991). However, there is also evidence that people with strong beliefs in their ability to control become distressed by situations which they cannot control (Seeman, 1991). Evidence about the importance for human functioning of acceptance versus emotional avoidance suggests that whether people engage in primary or secondary means of control may not be as important as their willingness to accept the feelings that arise when they are unsuccessful in efforts at control. Indeed, it may be more useful to people in stressful situations to help them accept the feelings that arise from uncontrollable situations than to join them in an agenda of control. Thus, cognitive reframing may help to diminish the impact of distressing thoughts. However, it may also encourage people to think that they must find ways to view thoughts that will make them less distressing; this may subtly reinforce an agenda of control. This may be one reason why EA mediates the positive impact of cognitive reappraisal (Kashdan et al., 2006): it is helpful only to the degree that it leads to a more flexible and accepting stance on cognition.

Relationship to resilience research—Research on EA concurs with work on resilience. A number of studies document the tendency of some people exposed to extreme stress to succeed nonetheless on social and academic tasks (e.g., Luthar, 1991; Luthar, Doernberger, & Zigler, 1993; Masten et al., 1999; Masten, Best, & Garmezy, 1990). We label such persons resilient. Research also shows that youth exhibiting resilience in some areas of functioning nonetheless often show psychological difficulties like depression (Luthar et al., 1993). The studies show that, in the context of stressors like socioeconomic disadvantage, divorce, or trauma, youth are more likely to succeed academically and socially with stable parental care or other caring adults, high intelligence, or specific areas of competence (Masten et al., 1990; 1999).

With few exceptions, experiential avoidance measures have not been included in resilience studies. However, it is plausible and worth studying whether those who are low in EA (i.e., high in openness to and acceptance of unpleasant emotional experiences) are more resilient since they do not lock into self-amplifying efforts to control unpleasant experience that increase psychological distress and avoidant behavior, causing more issues. This seems to be the case in the elderly, in which psychological acceptance is associated with greater resilience and quality of life (Butler & Ciarrochi, 2007). Indeed, some measures of psychological resilience specifically contain measures of psychological acceptance (e.g., Schumacher, Leppert, Gunzelmann, Strauss, & Braehler, 2005), and in prospective studies of adjustment to death and loss, acceptance is one of the predictors of resilience (Bonanno et al., 2002). These interconnections suggest that prevention researchers may be able to inoculate people against many types of adversity by increasing their openness to distress that naturally arises from adversity. Furthermore, creativity and problem-solving abilities relate to openness to experience (George & Zhou, 2001).

Implications for Risk Factor Research

From the public health perspective organizing prevention science, two key questions arise regarding experiential avoidance. One involves its prevalence; the other concerns the extent to which it is a risk factor for many problems we try to prevent. The evidence reviewed here makes clear that EA is associated with a wide variety of psychological problems. However, only a few of the studies conducted so far involve longitudinal data (Bond & Bunce, 2003; Hayes, Strosahl et al., 2004; Marx & Sloan, 2005; Plumb et al., 2004). Evidence that reducing EA mediates therapeutic outcomes for diverse problems (Hayes, Follette, & Linehan, 2004; Hayes et al., 2006) also points to its central role in many of the problems we wish to prevent. Evidence remains limited, however, about the extent to which EA contributes to the development of externalizing problems, such as interpersonal aggression.

Given existing evidence, large-scale population-based studies are essential to determine the prevalence of EA and allow calculation of the population-attributable risk of EA for the problems with which it seems to correlate. Such studies would provide new chances to replicate findings that EA is a construct distinct from other measures of psychological functioning. Moreover, these studies would enable better delineation of the extent to which EA is a direct risk factor for problems vs. a factor that interacts with stress to produce problems.

If EA emerges as a risk factor for diverse problems, research on the factors influencing its development will be crucial. These might include studies of the influences of schools, families, and the media on experiential avoidance.

Implications for Strengthening Preventive Interventions

Many preventive interventions might be more effective if they incorporated ACT principles and procedures. Here we point out how ACT could enhance some of them.

Parenting Skills Interventions

Behavioral parenting skills training programs produce consistent significant effects on parents' skills and children's behavior and appear to be the treatment of choice for child behavior problems (Biglan et al., 2004), however the impact of most interventions could be greater (e.g., Smolkowski et al., 2005). For the most part, these interventions concentrate on teaching specific parenting skills and pay less attention to parents' thoughts and feelings or to their values. When they do address parents' thoughts and beliefs, they commonly advise parents to try to control negative thoughts about their children. Suggested strategies include "soothing self-encouragement," refutation of upsetting thoughts, and visualizing positive outcomes. From an acceptance perspective, these approaches imply that such thoughts are the reasons for parents' inappropriate practices (e.g., "he made me so angry, I started yelling"). If emerging evidence from ACT research is correct, such strategies may be counterproductive; they may intensify negative thoughts and may distract parents from using newly acquired parenting skills in service of their values about their child and their relationship with their child.

ACT would encourage parents to accept upsetting thoughts and feelings that often accompany parenthood, but would gently challenge the assumption they must believe those thoughts or eliminate them before they can move toward parenting practices that are more effective and more in keeping with their values. Exercises and metaphors, as described above, would help parents notice and accept their thoughts and feelings as they interact with their children, and take those thoughts less literally. It would help clarify their values about relationships with their children and their children's direction in life. It would help them "be in the moment" as they interact with their children.

From a research perspective, one could evaluate the efficacy of this strategy by measuring common thoughts about parenting and examining whether an ACT strategy reduces the believability—if not the frequency—of those thoughts (Bach & Hayes, 2002). One could then examine the degree to which such changes mediated intervention effects on parent behavior.

Blackledge and Hayes (2006) examined the impact of ACT on parents of autistic children in within-subject design. ACT reduced parental depression and distress, but this study did not directly target skills training. A small series of case studies provided some evidence that mindfulness training with parents led to reductions in child aggression, non-compliance, and self-injury (Singh et al., 2006).

It may also be important to examine whether parenting interventions should focus on changing the ways parents socialize their children regarding ways of responding to emotions and negative cognitions. For example, if parents receive assistance in helping children to label their emotional reactions accurately, accept them, articulate valued ways of behaving, and support action in keeping with values, even in the face of negative emotions, it could conceivably improve the outcomes of parenting skills training programs (Murrell, Coyne, & Wilson, 2004).

Interventions Targeting Adolescents

Existing evidence suggests that experiential avoidance is an important, but previously undiscerned, psychological process among adolescents. Interventions that foster acceptance of negative thoughts and feelings and commitment to valued action could contribute to the prevention of a wide range of problems.

Perhaps the most important pathway to adolescent problem behavior is through deviant peer influences (Biglan et al., 2004). Social rejection, including teasing and harassment, heightens susceptibility to peer influence (Patterson, Reid, & Dishion, 1992; Rusby, Forrester, Biglan, & Metzler, 2005). A likely mechanism subserving this process is the worry and distress such rejection causes an adolescent. Teasing and harassment, which escalate in middle school (Gottfredson, Gottfredson, & Hybl, 1993), are likely to increase adolescent worries about their peers accepting them. Are they sufficiently masculine or feminine? Are they dressed right? Will their peers accept them? Presumably, many teens worry about these issues and take them quite literally. It is not that your peers might think you uncool; it is that you might actually BE uncool!

As noted above, a recent paper by Greco et al. (in press) reported that an adolescent version of the AAQ, the *Avoidance and Fusion Questionnaire*, was correlated with a variety of measures of adolescents psychological and behavioral functioning. This suggests that, in the context of peer teasing and harassment, students are most vulnerable if they engage in EA.

We therefore need to examine whether acceptance and commitment exercises increase resistance to deviant peer influences. Current classroom-based approaches to preventing tobacco and other substance use train students in social skills for resisting peer influences (e.g., Botvin, Tortu, Baker, & Dusenbury, 1990; Sussman et al., 1993). However, these programs might be strengthened by acceptance and defusion components of ACT as well as by activities that foster committed action in the service of important values. Exercises that foster the adolescent tendency to accept unpleasant thoughts and feelings about peer pressure, and that help them see that those thoughts and feelings are not literally true, but are thoughts and feelings they are having, may reduce the influence of such thoughts over behavior. Helping adolescents define valued directions they want to take in their life may orient them toward action that is not about fitting in with peers. Strengthening these processes could inoculate adolescents against peer influences to engage in the entire range of problem behaviors.

One problem with much prevention research is its failure to link interventions clearly to hypothesized mediating psychological processes and hypothesized mediators to behavioral and psychological outcomes (Eddy, 2006). The present analysis proposes clear links between acceptance-based intervention processes, reductions in experiential avoidance, resistance to peer influences, and reductions in diverse problem behaviors.

To date, we have limited data on ACT interventions with children and adolescents. Wicksell, Melin, and Olsson (2007) reported substantial (effects sizes ranging from .47 to 1.53) improvements in a series of 14 adolescents with chronic pain. Metzler, Biglan, Noell, Ary, and Ochs (2000) reported the results of a randomized controlled trial that employed ACT strategies as part of a multicomponent program to reduce high-risk sexual behavior in adolescents. However, the role of the ACT components per se cannot be determined. Several additional studies are currently underway in the areas of pain, diabetes, anxiety, and eating disorders.

The Prevention of Depression

ACT may also be valuable for the improving the efficacy of prevention interventions for depression. Horowitz and Garber (2006) provide a meta-analysis of studies of depression prevention among children and adolescents. They report small, but significant effects for studies involving either selective interventions (mean effect size = .30) and indicated interventions (mean effect size = .23). One of the most common approaches to the prevention of depression involves cognitive behavior therapy in which people learn to modify depressogenic thoughts (Clarke et al., 1995; 2001; Gilham, Hamilton, Freres, Patton, & Gallop, 2006; Muñoz et al., 1995; Seligman, Schulman, DeRubeis, & Hollon, 1999). For example, Seligman et al. (1999) report on an intervention whose topics included: “(a) the cognitive theory of change (the relationship between thoughts, feelings, and behaviors); (b) identifying negative thoughts and underlying beliefs; (c) marshaling evidence to question and dispute automatic negative thoughts and irrational beliefs... and (d) replacing automatic negative thoughts with more constructive interpretations, beliefs, and behaviors....” [no page number given].

ACT takes a distinctly different perspective. Rather than encouraging people to dispute and try to get rid of negative thoughts, it encourages people to accept whatever thoughts they have, but to look at them as thoughts, not as accurate descriptions of their situation or the world. Through acceptance and defusion, the influence of such thoughts is diminished, even if their frequency remains unchanged. As evidence cited above suggests, efforts to control such thoughts may be counterproductive.

Two lines of evidence are consistent with the possibility that this is a more fruitful approach to preventing (and treating) depression. First, ACT seems to have an equal (Forman Herbert, Moitra, Yeomans, & Geller, in press; Zettle & Rains, 1989) or greater (Zettle & Hayes, 1986; Lappalainen, Lehtonen, Skarp, Taubert, Ojanen, & Hayes, 2007) impact on depression as compared to traditional cognitive-behavioral treatment. In all of these studies, ACT effects were mediated by experiential avoidance and related ACT processes, which the present paper shows predict positive outcomes in a broad range of areas. That is not true with the processes altered by traditional CBT methods. Second, recent component analysis studies comparing behavioral activation (in which people are encouraged to become more active, but do not receive cognitive intervention) with full-blown cognitive-behavior therapy have shown that behavioral activation is as effective (Gortner, Gollan, Dobson, & Jacobson, 1998; Jacobson & Christensen, 1996) or more effective (Dimidjian et al., 2006) than traditional cognitive behavior therapy. Furthermore, there is little evidence that the processes manipulated by traditional CBT actually predict CBT outcomes (Longmore & Worrell, 2007). The ACT focus on values and commitment, coupled with acceptance and defusion, orients people to take action in the service of their values, even in the face of stressful events. Such an orientation may be

particularly valuable in preventing the onset of depression, when one encounters stressful experiences.

ACT in Education

A few small studies are occurring on ACT's impact in educational settings, such as junior high health classes, college classes, Phys Ed programs (e.g., Yoga) and after-school programs. For example, one recent study, available so far only in dissertation form, found that a randomly assigned but required high-school ACT health class led to lower levels of stress and anxiety at a one-year (Livheim, 2004) and two-year (Jakobsson & Wellin, 2006) follow-up. These changes were mediated by greater acceptance of undesirable thoughts and feelings.

Acceptance, defusion, and mindfulness are teachable skills. Additionally, there seem to be fewer barriers in teaching them in schools than with other methods more closely linked to functionally similar methods (e.g., meditation) but also linked in the public mind to specific religions (e.g., Buddhism).

ACT is also relevant to dealing with the stress problems of teachers. Compared with the general population, teachers are at higher risk for psychological distress and low job satisfaction (Schonfeld, 1990). Teachers in schools with high levels of misbehavior and other stressful conditions experience more stress and burnout (Abel & Sewell, 2001). Gersten, Keating, Yovanoff, & Harniss (2001) reported that stress among special education teachers is related to their intention to leave the field. Thus, addressing the stress problems of teachers may be important for improving education, keeping teachers in the field, and improving the quality of their lives. Given the impact of recent ACT studies on reducing stress and burnout among drug abuse counselors (Hayes, Bissett et al., 2004) and call center employees (Bond & Bunce, 2000; 2003), we are exploring its value for teachers. There is also evidence from work with drug abuse counselors that they are more likely to adopt new treatment procedures after an ACT workshop (Varra, Hayes, Roget, & Fisher, 2007). This suggests that ACT may be instrumental in influencing teachers to try the many evidence-based practices that prevention researchers are trying to introduce into schools.

ACT may also be useful in preventing problems among college students. Most colleges and universities conduct freshman orientation classes that include material on withstanding the stress of college life. It is common for these classes to include material on emotional intelligence, healthy thinking styles, and the like, even though correlational and mediational analyses provide more support for acceptance and mindfulness than they do for these processes (e.g., Donaldson & Bond, 2004). Thus, it is important to conduct research on the value of ACT for improving our ability to prevent the most common problems of college students.

ACT at Work

A number of randomized trials have already shown the benefit of ACT methods in the workplace (Bond & Bunce, 2000; Hayes, Bissett et al., 2004). Acceptance and mindfulness seem to predict not only fewer health problems but also higher work performance (Bond & Bunce, 2003; Donaldson & Bond, 2004). Other randomized trials have shown ACT to prevent pain-related worker disability and to have a dramatic effect on absences associated with illness (Dahl, Wilson, & Nilsson, 2004). Prevention scientists have done relatively little work on prevention in the worksite. These findings suggest a strategy that could greatly expand the ability of prevention scientists to make a difference in work settings.

ACT in Medical Care

Many visits to a health provider involve behavioral health issues (Vogt et al., 1998). However, traditional psychological models have a hard time fitting in the time demands of primary

medical healthcare. It is possible to disseminate the core ACT message in short interventions; the fit between an ACT model and pragmatic normal healthcare is good. Already a number of studies have occurred on ACT as a support for front line medical healthcare.

For example, in one randomized trial, Gregg, Callaghan, Hayes, and Glenn-Lawson (2007) added three hours of ACT training to patient education received at a public health clinic by poor and mostly minority patients with Type II diabetes ($N = 81$). After three-months, ACT outperformed education alone on changes in self-management behavior and percentage of patients in blood glucose (HbA_{1C}) control. Mediation analyses showed that diabetes-related acceptance and action, combined with self-management, mediated blood glucose control.

Similarly, Lundgren, Dahl, Melin, and Kees (2006) conducted a small randomized trial ($N = 27$) comparing ACT to an attention placebo with poor, institutionalized South African epileptics who were receiving medical care for their seizures. A nine-hour ACT intervention reduced the total time per month seizing by over 95%. The participants maintained these improvements over one year. Equally important, by integrating ACT into medical care, patients began a new path in their lives more generally. The authors used the WHO Quality of Life Scale and its subscales (environmental, physical, and psychological health and social relationships) looking for improvement in overall quality of life. They had no improvement at post, but began to improve at six-month follow-up, and showed large and significant changes at one year (between condition Cohen's d for the overall scale of $= .28, .51, \text{ and } 1.59$ across post, six-month follow-up, and one-year follow-up, respectively, with similar findings on all four subscales). ACT produced very large improvements at post and both follow-ups in a specific epilepsy-focused version of the AAQ (between condition d above 2.8 at all occasions), and measures of changes in values attainment and persistence in the face of psychological barriers, which fully mediated both the seizure improvements and the quality of life improvements seen a year later.

Given these kinds of results, it seems important to develop and test short applications of the ACT model in primary healthcare and to test the ability of these strategies to increase adherence to medical regimens and to prevent problems beyond the specific areas addressed.

Implications for Policy

To the extent that experiential avoidance and its converse, acceptance, are shown to be important for human wellbeing, it will be important to examine how public policy affects them. For example, our society makes extensive use of punishment in order to deal with undesirable social behavior (Biglan, 1995). Often the punishment process communicates to people that they should not engage in the behavior and, in the context of a culture that teaches that behavior is due to thoughts and feelings, the message is implicit that people should control their thoughts and feelings. Acceptance research suggests that this may only heighten an offender's experience of thoughts and feelings associated with engaging in the unwanted behavior and which the offender feels makes the behavior irresistible. Research might explore if our policies for dealing with those who break the law or school rules should include a process of fostering acceptance.

The Potential of Acceptance-Based Strategies

Many of the most successful strategies of prevention interventions arose from cognitive behavior therapy and basic and applied behavior-analytic research. However, research over the past 20 years has found substantial room for improving our preventive interventions and, until lately, it has been unclear from where new initiatives might arise. The evidence reviewed here indicates that recent research in behavior therapy and verbal behavior have delineated a core verbal process—experiential avoidance—that seems to be a risk factor for a wide range of human problems. Interventions that assist people in accepting difficult thoughts and feelings

and focusing instead on effective action seem to have great promise for increasing the efficacy of our interventions. We might also examine a variety of related concepts in the ACT work and related approaches (e.g., values attainment, focus on the present, mindfulness) for possible sources of new prevention approaches, which only stress the possibility that newer behavioral and cognitive approaches hold the promise of improving the precision and impact of prevention research.

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Figure 1.