

Hayes, S. C., Masuda, A., Bissett, R., Luoma, J., & Guerrero, L. F. (in press). DBT, FAP, and ACT: How empirically oriented are the new behavior therapy technologies? **Behavior Therapy**.

Running head: DBT, FAP, AND ACT

DBT, FAP, and ACT:

How Empirically Oriented Are the New Behavior Therapy Technologies?

Steven C. Hayes

Akihiko Masuda

Richard Bissett

Jason Luoma

L. Fernando Guerrero

University of Nevada, Reno

Address editorial correspondence to:

Steven C. Hayes

Department of Psychology /298

University of Nevada

Reno, Nevada 89557-0062

Abstract

Dialectical Behavior Therapy, Acceptance and Commitment Therapy, and Functional Analytic Psychotherapy have recently come under fire for “getting ahead of their data” (Corrigan, 2001). The current article presents a descriptive review of some of the actual evidence available. Dialectical Behavior Therapy and Acceptance and Commitment Therapy have a small but growing body of outcome research supporting these procedures and the theoretical mechanisms thought to be responsible for them. Functional Analytic Psychotherapy has a limited research base, but its central claim is well substantiated. The claims made in the published literature about these technologies, at least by their originators, seem proportionate to the strength of the current evidence. There is no indication that those interested in the new wave of behavior therapy innovations are less committed to empirical evaluation than has always been the case in behavior therapy.

Key terms: Dialectical Behavior Therapy; Acceptance and Commitment Therapy; Functional Analytic Psychotherapy

A DBT, FAP, and ACT:

How Empirically Oriented Are the New Behavior Therapy Technologies?

The behavior therapy tradition has been marked by a commitment to empirical evaluation. From the beginning, behavior therapy has been defined in terms of “conformity to well established experimental paradigms” (Franks & Wilson, 1974, p. 7). This empirical commitment was sustained through the first wave of behavior therapy development, and through the second wave represented by the rise of cognitive therapy.

Over the last several years a third wave of behavior therapies has emerged from within both the cognitive and behavioral traditions. Examples include Dialectical Behavior Therapy (DBT; Linehan, 1993), Acceptance and Commitment Therapy (ACT; Hayes, Strosahl, & Wilson, 1999), Functional Analytic Psychotherapy (FAP; Kohlenberg & Tsai, 1991), Integrative Behavioral Couples Therapy (IBCT; Christensen, A., Jacobson, N. S., & Babcock, J. C., 1995; Jacobson & Christensen, 1996; Jacobson, Christensen, Prince, Cordova, & Eldridge, 2000), Mindfulness Based Cognitive Therapy (MBCT; Segal, Williams, & Teasdale, 2002), and several others (e.g., Borkovec & Roemer, 1994; McCullough, 2000; Marlatt, 2002; Martell, Addis, & Jacobson, 2001; Roemer & Orsillo, 2002). The factors that unite these new methods are not easy to characterize, but as a group they have ventured into areas traditionally reserved for the less empirical wings of clinical work, emphasizing such issues as acceptance, mindfulness, cognitive defusion, dialectics, values, spirituality, and relationship. Their methods are often more experiential than didactic.

Perhaps more evolutionary than revolutionary, these “new” methods also revitalize important features of the behavioral and cognitive therapy traditions, however, such as functional analysis, skills building, and direct shaping. The present paper considers whether this embrace of the best of the past includes also the commitment of the behavior therapies to empirical validation as the basis for treatment development.

The empirical commitment of the newer behavior therapies has been openly questioned. Recently, an article in *the Behavior Therapist* (Corrigan, 2001) examined three of the more visible new wave therapies – DBT, FAP, and ACT -- and suggested that these therapies were “getting ahead of the data” to a degree that questioned their commitment to empirically guided technologies. Corrigan described supporters of these new approaches as “devotees of interventions that lack the data to support them” (Corrigan, 2001, p. 192) and stated that supporters had “posed some eloquent arguments against the scientific method” (Corrigan, 2001, p. 192).

The primary basis for these opinions was not a review of the empirical literature on these technologies, nor of the specific claims made by their advocates. Rather, Corrigan argued that the ratio of empirical to non-empirical articles about these methods constitutes “an independent index that represents the claims made by the proponents” (Corrigan, 2001, p. 189).

It would be an important matter if the new behavior therapies have in fact departed from the long standing commitment of the behavior therapy tradition to empirical evaluation. An earlier article challenged the logic behind Corrigan’s analysis (Hayes, 2002), but provided no actual evidence on these new methods. The present article is the first review focusing on the empirical commitments of the three new behavior therapies criticized by Corrigan. If those interested in these technologies are “devotees of interventions that lack the data to support them” (Corrigan, 2001, p. 192), then that attitude should be manifest in the published record.

Analytic Strategy

In this review, we have focused on published data that evaluated the impact of ACT, FAP, or DBT interventions, alone or in combination with other treatments. Datasets that have been analyzed and presented but not yet published were avoided to add transparency to the review. Data published in any form (e.g., dissertations, chapters, books, articles) were included because a broader focus allows these relatively new research programs to be better characterized. Basic studies on underlying models, assessment studies, studies of clinician acceptability, cost effectiveness studies, and process studies, were put aside for present purposes since the criticism that occasions the present article

explicitly argued that it was the outcome literature that was a problem (Corrigan, 2001). Studies on specific treatment components (e.g., rationales, specific exercises, skills acquisition components), either alone or in combination with other treatments, were also excluded. There are many studies of this kind, particularly with DBT (e.g., Evans, Tyler, Catalan, Schmidt, Davidson, & Dent, 1999; Freda, 1999; Leerer, 1996; Lynch, Morse, Mendelson, & Robins, 2003; Manning, 1996; Springer, Lohr, Buchtel, & Silk, 1996; Turner, 2000) and to a lesser degree with ACT (e.g., Hayes, Bissett, Korn, Zettle, Rosenfarb, Cooper, & Grundt, 1999; Korn, 1997; Levitt, 2002; Metzler, Biglan, Noell, Ary, & Ochs, 2000). They provide evidence of the empirical commitments of those interested in these technologies, but they sometimes include only small fractions of their mother packages so including them seemed to go beyond the current purpose. All forms of outcome data are listed here in tabular form but only controlled studies will be covered in any detail in the text.

Publications were identified through several means, including searches of major databases, contacting presenters on these methods at major conventions, requests on list servers, and personal contacts. While additional articles almost certainly do exist, and new ones are being written regularly, the present analysis seems adequate for determining whether there is a commitment to traditional empirical values, whether excessive claims are being made, and whether the data currently available support the possible importance of these new technologies. The studies located for all three technologies are shown in Table 1.

Dialectical Behavior Therapy

Dialectical Behavior Therapy (DBT; Linehan, 1993) was originally designed for treating the parasuicidal behavior of individuals diagnosed with borderline personality disorder (BPD). DBT is based on a biopsychosocial view that emphasizes an interaction between an individual's constitutional predisposition toward dysregulating emotions and an environment that invalidates the individual's private experience. This combination can escalate into extreme behaviors, as the individual makes increasing attempts to receive validation from significant others who, in turn, typically respond to the individual in a punishing, trivializing, or dismissive manner.

The treatment is dialectical in its conceptualization of the process of change as an ongoing synthesis between alternative and even contradictory positions. The primary dialectical principle within DBT is that between acceptance and change. Acceptance strategies are closely aligned with the notion of unconditional positive regard in client-centered therapy, while change strategies are very similar to those of traditional cognitive or behavioral therapies in which the therapeutic objective is direct change of thoughts or overt behavior. Neither strategy is viewed as superior; each alone can be problematic. For example, change-based initiatives may come to be viewed as invalidating. The underlying message may be interpreted by the client as “I am not good enough. I have to change to be good enough.” Alternatively, acceptance initiatives may also prove to be invalidating. Here the underlying message may be “You need to learn to accept that your life will continue to be painful.” Therapy is viewed as an ever finer balancing of acceptance and change themes.

DBT defines four broad stages of therapy. In Stage 1 the objective is for the client to obtain basic capabilities, such as decreasing suicidal and other life-interfering behaviors (e.g., substance abuse, eating disorder, homelessness), and increasing behavioral skills, such as mindfulness, interpersonal effectiveness, emotional regulation, distress tolerance, and self-management. Stage 2 focuses on emotional problems, such as trauma-related affects through exposure. In Stage 3, the therapeutic focus moves to acquiring living skills in such areas as employment, education, and interpersonal relationships. Finally, Stage 4 focuses on the value and acceptance of personal struggles as being an inevitable component of human nature. The therapeutic focus in this final stage is enhancing living skills with contentment and joy, while acknowledging life difficulties.

In research settings DBT is a comprehensive, manualized treatment, typically consisting of weekly individual therapy, weekly group skills trainings, and telephone consultation. Although the length of treatment varies from three weeks to one year, the standard DBT intervention consists of a one-year package of individual and group interventions (Linehan, Armstrong, Suarez, Allmon, & Heard, 1991). A growing body of empirical studies has examined DBT outcomes (Koerner &

Dimeff, 2000; Koerner & Linehan, 2000). We found seven RCTs that met our inclusion criteria, six group designs of other kinds, and two case reports.

Borderline Personality Disorder

In the areas of BPD and related clinical problems, several published outcome RCTs were found. The first RCT involved the use of DBT as a treatment of chronically suicidal females with BPD in an outpatient setting (Linehan et al., 1991). Participants received either 12 months of individual and group DBT (n = 24) or treatment as usual (TAU; n = 23), consisting of alternative psychosocial interventions, such as individual psychotherapy. Post-treatment, DBT participants showed significantly fewer parasuicidal acts, greater rate of treatment completion, and fewer days of hospitalization, compared to TAU. These effects were generally maintained at follow-up (Linehan, Heard, & Armstrong, 1993; Linehan, Tutek, Heard, & Armstrong, 1994).

A second RCT replicated this finding in a Veteran's Administration clinic (Koons, Robins, Tweed, Lynch, Gonzalez, & Morse, 2001). BPD participants (n = 20; 10 per group) received six months of treatment and were assessed at baseline, mid- (3-month), and post-treatment (6-month). Results indicated a significantly greater reduction in suicidal ideation, depression, hopelessness, and anger among DBT than TAU participants.

A third RCT was conducted with 28 multi-disordered adult women with BPD and Substance Use Disorder in an outpatient setting (Linehan, Schmidt, Dimeff, Craft, Katner, & Comtois, 1999). Participants received either 12 months of individual and group DBT (n=12) modified to focus on substance abuse (see Linehan et al., 1999) or treatment as usual (n = 16). Results indicated significantly greater reduction in substance use among DBT participants throughout the treatment period and at a 16 month follow-up, compared to TAU, as well as benefits in social adjustment and dropout.

A fourth RCT was conducted with 23 women dually diagnosed with opiate-dependence and BPD (Linehan, Dimeff, Reynolds, Comtois, Welch, & Heagerty, 2002). Participants given DBT for substance abusers (n=11) were compared to a comprehensive validation therapy with 12-step

condition (CVT+12S; $n = 12$). The 12-month DBT intervention was the same as in the study above (Linehan et al., 1999). The CVT+12S included DBT acceptance-based techniques, including validation, reciprocal communication (e.g., genuineness, self-disclosure), and case management, however, without the use of behavior changing techniques. In addition, CVT+12S participants attended a required weekly 12 step meeting and were encouraged to participate in as many others as possible. Throughout the course of treatment intervention, all participants received concurrent opiate agonist therapy. Results indicated significantly greater reduction in the percentage of opiate-positive participants in both DBT and CVT+12S participants from pre-test (80%) to the 8-month point (35%). However, the rate significantly increased among CVT+12S participants following the 8-month point and continued to increase to 50% at post test, while the rate stayed low among DBT clients.

A fifth RCT involved the use of DBT as a treatment of BPD women with or without substance use problems (van den Bosch, Verheul, Schippers, & van den Brink, 2002). Participants receiving DBT ($n = 27$) were compared with TAU ($n = 31$). The DBT consisted of the standard 12-month DBT package (Linehan et al., 1991). Results demonstrated that DBT participants experienced a significantly reduced number of self-mutilating acts and greater rate of treatment completion, compared to TAU, regardless of whether clients had substance use problems. However, there was no improvement and no group difference in substance use at the 18-month follow-up.

Eating Disorders

Two RCTs were found for the treatment of eating disorders. In the first (Safer, Telch, & Agras, 2001b), women ($n = 31$) with a mean age of 34 and diagnosed with bulimia nervosa (averaging at least one binge/purge episode per week) were randomly assigned to 20 weeks of individual DBT psychotherapy ($n = 16$) or a 20-week wait list comparison condition ($n = 15$). Post-treatment results showed significant reductions in binge/purge behavior for DBT as compared to control.

The second study (Telch, Agras, & Linehan, 2001) examined DBT as a treatment for females with binge eating disorder. Participants were randomly assigned to 20 weeks of group DBT ($n = 22$) or to a wait-list control condition ($n = 22$). Results indicated 89% of DBT participants stopped binge

eating by the end of treatment, compared to 12.5% among the control condition. DBT participants also showed less concern about their weight, shape, and eating.

Functional Analytic Psychotherapy

Functional Analytic Psychotherapy (FAP; Kohlenberg & Tsai, 1991) is based on a behavioral analysis of the therapeutic relationship. FAP is meant to be used either in conjunction with traditional behavioral approaches or when the client's ability to relate to others form the core clinical difficulty. These interpersonal difficulties are thought to be due to discrimination deficits or a deficient, excessive, or aversive behavioral repertoire. FAP assumes that new and more useful behavior can be shaped during the process of psychotherapy by the contingent responding a of the therapist to client problems that occur in session, as well as to improvements in those behaviors. The underlying therapeutic assumption is that it is easier to deal with actual relevant behavior within session than with a mere description of the behavior.

The FAP therapist is asked to a) notice instances of problematic client behaviors; b) structure the therapy environment to increase the likelihood of observing these behaviors; c) be aware of occasioning these behaviors; d) contingently respond to instances of client improvement in these behaviors; and e) describe and train the client to describe his or her problematic behavior in functional terms – e.g., what is the relationship between behaviors (e.g., thoughts and feelings), the conditions that give rise to the behavior, and the consequences following the behavior.

We were able to locate one quasi-experimental and three empirical case studies of FAP. The quasi-experimental study compared FAP enhanced cognitive therapy to cognitive therapy (CT) on depression (Kohlenberg, Kanter, Bolling, Parker, & Tsai, 2002). 18 depressed adults were treated with standard CT. The same clinicians were then trained in FAP and an additional 28 depressed adults were treated with FAP-enhanced CT (n=28). Both conditions consisted of 20 sessions over a 6-month period. Results demonstrated that, compared to CT participants, FAP enhanced CT participants showed significantly greater reductions in depression, better general psychological health at post test, and higher general level of functioning at 3-month follow-up. In addition, FAP enhance

CT participants demonstrated significantly greater increase in relationship satisfaction than CT participants at post-treatment and follow-up.

Acceptance and Commitment Therapy

ACT derives from the philosophy of functional contextualism (Biglan & Hayes, 1996; Hayes, 1993) and Relational Frame Theory (RFT), a detailed theory and research program about the nature of human language and cognition that has been the subject of a separate volume, itself encompassing a substantial body of evidence (Hayes, Barnes-Holmes, & Roche, 2001). A core insight of RFT is that cognitions (and verbally labeled or evaluated emotions, memories, or bodily sensations) achieve their potency not only by their form or frequency, but by the context in which they occur.

Problematic contexts include those in which private events need to be controlled, explained, believed, or disbelieved, rather than being experienced.

From an ACT perspective, many forms of psychopathology can be conceptualized as a) unhealthy efforts to control emotions, thoughts, memories, and other private experiences (Hayes, Wilson, Gifford, Follette, & Strosahl, 1996), b) unhealthy examples of the domination of cognitively-based functions over those based in actual experience, and c) a lack of clarity about core values and the ability to behave in accordance with them. The general goal of ACT is to diminish the role of literal thought ('cognitive defusion'), and to encourage a client to contact psychological experience – directly, fully, and without needless defense ('psychological acceptance') – while at the same time behaving consistently with ones chosen values. ACT does not abandon direct change efforts, but refocuses them toward more readily changeable domains, such as overt behavior or life situations, rather than personal history or automatic thoughts and feelings. ACT shares common ground with experiential therapies in that experiencing and feeling are accepted and valued, and some of the techniques used in ACT are borrowed from experiential approaches. The core conceptualization, however, remains thoroughly behavioral.

ACT is a comprehensive, manualized treatment that has been delivered in both individual and group psychotherapy formats. Because the core conception appeals to normal processes of human

language and cognition (Hayes et al., 1996; Hayes et al., 2001) if the theory is correct ACT should have broad applicability, and indeed ACT has been applied to a wide variety of patients. The length of the intervention has varied greatly between studies, from 48 sessions over 16 weeks to four sessions over three weeks (Hayes, Pankey, Gifford, Batten, & Quiñones, 2002).

A review of the literature produced eight RCTs on ACT, two group studies of other kinds, and fifteen single- or multiple-case reports. In an initial small RCT (Zettle & Hayes, 1986) eighteen depressed women were randomly assigned either to an early version of ACT¹ (n = 6), or to two variations of cognitive restructuring (with and without cognitive distancing; n=12) based on Beck's Cognitive Therapy (CT; Beck, Rush, Shaw, & Emery, 1979). The same primary therapist was trained both by Beck and Hayes in their particular forms of intervention. Each treatment condition consisted of 12 weekly individual sessions. Results indicated both treatments produced significantly greater reduction in the Hamilton Rating Scale for Depression at post-treatment, compared to pretreatment. ACT demonstrated significantly greater reduction in depression than CT at a two-month follow-up and showed more rapid decreases in the believability of depressogenic thoughts.

An RCT by Zettle and Raines (1989) compared three group treatments for depressed women (n=31). The treatments were a complete cognitive therapy protocol (n = 10), a partial cognitive treatment package with the cognitive distancing component absent (n = 10), and ACT (n = 11). Patients were treated for twelve ninety-minute sessions. Significant and comparable reductions in depression were found for all three treatment conditions at post-treatment and at 2-month follow-up.

In an RCT focused on workplace stress management (Bond & Bunce, 2000) 90 workers (45 females and 45 males) at a media organization were randomly assigned (n=30) to an ACT protocol (Bond & Hayes, 2002), to a behaviorally-oriented Innovation Promotion Program (IPP; n=30) that encouraged participants to identify and change stressful events in their workplace, or to a waitlist control (n = 30). Both treatment interventions 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-treatment and at a 3-month follow-up.

Both interventions were equally effective in relieving depression and increasing the propensity to take concrete actions to reduce worksite stressors. The outcomes achieved by the ACT intervention were mediated by an increased acceptance of undesirable thoughts and feelings.

In an RCT focused on participants with positive psychotic symptoms (Bach & Hayes, 2002), 80 participants (45 males and 25 females) were randomly assigned either to treatment as usual (TAU) or to TAU plus four 45-minute individual ACT sessions ($n = 40$ per group). ACT sessions targeted acceptance of the private experience of symptoms, defusion from these symptoms, the importance of distinguishing one's self from the content of one's thoughts, and the role of committed action in the achievement of valued goals. ACT participants demonstrated significantly lower levels of rehospitalization (approximately 50% fewer readmissions) over a four-month follow-up. Paradoxically, a greater number of ACT participants than TAU participants admitted to symptoms at the end of follow-up, but in the ACT condition only, participants who admitted symptoms were particularly unlikely to be readmitted. ACT participants also showed significantly lower levels of symptom believability at follow-up. None of the ACT participants who both admitted to symptoms and showed reduced symptom believability were readmitted to the hospital.

Another RCT compared the effects of ACT on mathematics anxiety with systematic desensitization (Zettle, in press). Thirty-seven college students (30 women and 7 men, mean age 31) with math anxiety were randomly assigned to six weekly one-hour sessions. Math and test anxiety decreased significantly and equivalently for both groups. These reductions were maintained at a two-month follow-up. No group difference was found for trait anxiety, but only systematic desensitization showed a significant reduction from pre-treatment to post-treatment on this measure. Experiential avoiders showed a larger change in math anxiety at follow-up within the ACT condition, but not the systematic desensitization condition.

An RCT was conducted with polysubstance abusing opiate addicted individuals maintained on methadone (Hayes, Wilson, Gifford, Bissett, Batten, Piasecki, Byrd, & Gregg, 2002; data are available in Bissett, 2001). In an additive model, participants ($n=114$) were randomly assigned to stay

on methadone maintenance (n=38), or to add 16 weeks of individual and group ACT (n=42), or Intensive Twelve Step Facilitation (ITSF; n=44) components. At the six-month follow-up, participants in the ACT condition (but not the ITSF condition) demonstrated a greater decrease in objectively measured (through monitored urinalysis) opiate use than those in the methadone maintenance condition.

Another RCT compared ACT to nicotine replacement therapy (NRT) as a method of smoking cessation (Gifford, 2002). Fifty-seven chronic smokers were randomly assigned to a 12-session ACT protocol (n = 27) or the nicotine replacement patch (n = 31). Quit rates, as assessed by objective monitoring of CO levels, were equivalent immediately post-treatment, but at a one-year follow-up those in the ACT condition showed greater rates of smoking cessation.

A small RCT on social anxiety (Block, 2002) compared ACT to Cognitive Behavioral Group Therapy (CBGT; Heimberg, Salzman, Holt, & Blendell, 1993), an empirically-supported treatment for social anxiety, and to a no treatment control. Participants were 39 college students (13 males, 26 females; 13 per group) experiencing at least a moderate degree of simple social phobia (median age = 21). Treatment consisted of a three-session ACT-based public speaking “workshop,” a CBGT-based workshop of the same duration, or a no-treatment control group. Results indicated that ACT participants evidenced a significant increase in reported willingness to experience anxiety, a significant decrease in behavioral avoidance during public speaking, and a marginal decrease in anxiety during the exposure exercises as compared with the control group. Participants in the CBGT condition also showed a marginal significant increase in willingness, a significant decrease in self-reported avoidance, and a marginal decrease in reported anxiety, relative to the no-treatment control group. ACT participants remained longer in the post-treatment behavioral exposure task than participants in the CBGT group, after controlling for pretreatment BPT scores.

One quasi-experimental effectiveness study of ACT has been reported (Strosahl, Hayes, Bergan, & Romano, 1998). In a health maintenance organization, 8 therapists volunteered to receive training in ACT, while 10 did not. Training consisted of a didactic two day workshop, three days of

clinical training focused on the ACT manual, and one year of three-hour monthly group supervision sessions. Trainees were encouraged to use their training as they saw fit. Prior to training and again at the end of training one year later, all new clients of clinicians in the project were assessed at the start of their treatment and 5 months later (321 clients were assessed representing virtually every kind of mental health issue). Prior to training, the two groups did not differ in the percentage of clients finishing therapy by 5 months, nor in the degree to which they were coping after treatment with their presenting problem. After training, clients of ACT-trained therapists reported significantly better coping outcomes, were more likely to have completed therapy within five months, and were more likely to agree with their clinician on the ongoing status of therapy than were the clients of the other therapists.

Strength of Claims

We did not find any claims of efficacy for FAP in these publications. In the case of ACT, some promising data exist and thus claims of preliminary or provisional support appear to be reasonable. Such claims have been made. For example, Hayes, Strosahl, and Wilson stated "We view the initial experimental evaluations of ACT as positive but preliminary" (Hayes et al., 1999, p. 65). The present review seems to support that statement.

DBT has a more substantial empirical foundation, particularly with BPD. None of the claims made in any of the DBT articles were excessive – indeed in light of the growing base of support, the claims for DBT often seemed consciously humble: "Although this treatment shows great promise, its efficacy so far has only been demonstrated in three randomized studies (Linehan et al., 1991; Linehan et al., 1999; Koons et al., 2001). More research of various kinds is clearly needed." (Robins, Ivanoff, & Linehan, 2001, p. 458).

Conclusion

Each of these new behavior therapies show a clear link to empirical evaluation. The sense that some may have that these approaches are not empirically based might simply be due to the newness of these approaches and their research programs. Of the **42** outcome-focused publications

that were located, 84% have appeared in the last five years and 72% since 2000. Nearly 550 participants have received DBT, FAP, or ACT in these published studies.

The progress is not uniform. Only one quasi-experiment and three case studies on FAP were available, all of which examined FAP combined with another approach (either CT or ACT). It is not yet clear, however, that FAP should be evaluated primarily as a stand alone therapy. FAP provides methods to therapists that encourage them to shape client progress, however they conceptualize treatment and its goals. Shaping of client behavior by therapists is among the oldest and best established behavioral approach (e.g., Browning, 1967; Greenspoon, 1955; Truax, 1968), whether or not FAP ever emerges as an empirically supported treatment in its own right.

The empirical evidence involving DBT and ACT is more substantial. In the case of DBT, we found 15 publications, including 7 RCTs. Some of these studies are quite substantial. Because the research is focused of specific disorders, the research has a growing sense of depth. DBT is clearly the best empirically validated psychosocial treatment currently available for BPD.

For ACT, 23 empirical publications were found, including 8 RCTs. A wide variety of conditions have been studied, including polysubstance abuse, tobacco use, psychosis, fear of public speaking, major depression, chronic pain, eating disorders, a variety of anxiety disorders, and work-site stress. The wide range of problems covered in these studies fits with a central claim of ACT -- that the processes of human language and cognition it targets are at the core of many forms of human psychopathology -- but the research in any one area is currently limited. Furthermore, some of these studies are available only in dissertation form, and many of the empirical papers are case studies.

The existing evidence provides several reasons to think that DBT and ACT may represent meaningful developments in behavior therapy. First, there are positive data supporting the efficacy of ACT and DBT with patient problems that have often been seen as difficult and unresponsive to treatment, such as psychosis (Bach & Hayes, 2002), or substance abusers with borderline personality disorder (Linehan et al., 1999). Second, these approaches may be transportable. Some of the research on these approaches has been conducted by research teams not led by their originators (e.g., Bond &

Bunce, 2000), DBT has been widely adopted by systems of care, and ACT has quasi-experimental effectiveness evidence (Strosahl et al., 1998). Third, some of the reviewed studies have compared these treatments to empirically supported alternatives, rather than solely to “no treatment control” conditions (e.g., Block, 2002). In some cases, these approaches have been found to be more effective than existing empirically-supported alternatives (e.g., Zettle & Hayes, 1986). Fourth, some of these outcome studies have shown processes of change that fit with the underlying models and that are distinct from alternative treatments (e.g., Bach & Hayes, 2002). Fifth, some studies are being done on both DBT and ACT components (e.g., Evans et al., 1999; Hayes et al., 1999), and on their utility when combined with others technologies (e.g., Linehan et al., 1999).

That being said, there are many methodological issues that can and will be raised about the studies described here (e.g., effect sizes, measures, the strength of the controls used, and so on). Such detailed evaluative issues go beyond the scope and purpose of the present descriptive review (and we would hardly be in an unbiased position to make such judgments about these particular technologies in any case). Our present concern was more focused on the issue of values and goals that are reflected in the research programs. It would be a grave matter if the empirical core of behavior therapy was weakening precisely at the moment when it began to confront some of the more complex clinical problems and issues that heretofore have largely been addressed outside of the behavioral tradition. The present review provides concrete evidence that such a worry has little basis in fact. Those interested in the new wave of behavior therapies seem to be keeping their commitment to the empirical path of clinical development that has always been a defining feature of the behavior therapy tradition.

References

- Bach, P. & Hayes, S. C. (2002). The use of Acceptance and Commitment Therapy to prevent the rehospitalization of psychotic patients: A randomized controlled trial. *Journal of Consulting and Clinical Psychology, 70*, 1129-1139.
- Batten, S. V., & Hayes, S. C. (in press). Acceptance and Commitment Therapy in the treatment of co-morbid substance abuse and posttraumatic stress disorder: A case study. *Clinical Case Studies*.
- Beck, A. T., Rush, A. J., Shaw, B. F., & Emery, G. (1979). *Cognitive therapy of depression*. New York: Guilford Press.
- Biglan, A., & Hayes, S. C. (1996). Should the behavioral sciences become more pragmatic? The case for functional contextualism in research on human behavior. *Applied and Preventive Psychology: Current Scientific Perspectives, 5*, 47-57.
- Bissett, R. T. (2001). *Processes of change: Acceptance versus 12-step in polysubstance-abusing methadone clients*. Doctoral dissertation available from the University of Nevada. Dissertation Abstracts International – B, 63/02, p. 1014, Aug 2002.
- Block, J. A. (2002). *Acceptance or change of private experiences: A comparative analysis in college students with public speaking anxiety*. Doctoral dissertation. University at Albany, State University of New York.
- Bohus, M., Haaf, B., Stiglmayr, C., Pohl, U., Bohme, R., & Linehan, M. (2000). Evaluation of inpatient dialectical-behavioral therapy for borderline personality disorder: A prospective study. *Behaviour Research and Therapy, 38*, 875-887.
- Kohlenberg, R. H., Kanter, J. W., Bolling, M. Y., Parker, C., Tsai, M. (2002). Enhancing cognitive therapy for depression with functional analytic psychotherapy: Treatment guidelines and empirical findings. *Cognitive and Behavioral Practice, 9*, 213-229.

Bond, F. W. & Bunce, D. (2000). Mediators of change in emotion-focused and problem-focused worksite stress management interventions. *Journal of Occupational Health Psychology, 5*, 156-163.

Bond, F. & Hayes, S. C. (2002). ACT at work. In F. Bond & W. Dryden (Eds.), *Handbook of brief cognitive behaviour therapy* (pp. 117-140). Chichester, England: Wiley.

Borkovec, T. D., & Roemer, L. (1994). Generalized anxiety disorder. In R. T. Ammerman & M. Hersen (Eds.), *Handbook of prescriptive treatments for adults* (pp. 261-281). New York: Plenum.

Browning, R. M. (1967). A same-subject design for simultaneous comparison of three reinforcement contingencies. *Behaviour Research and Therapy, 5*, 237-243.

Carrascoso, F. J. L. (2000). Acceptance and commitment therapy (ACT) in panic disorder with agoraphobia: A case study. *Psychology in Spain, 4*, 120-128.

Corrigan, P. W. (2001). Getting ahead of the data: A threat to some behavior therapies. *The Behavior Therapist, 24*, 189-193.

Christensen, A., Jacobson, N. S., & Babcock, J. C. (1995). Integrative behavioral couple therapy. In N. S. Jacobson & A. S. Gurman (Eds.), *Clinical handbook of couples therapy* (pp. 31-64). New York: Guilford Press.

Dimeff, L., Ruzvi, S. L., Brown, M., & Linehan, M. M. (2000). Dialectical behavior therapy for substance abuse: A pilot application to methamphetamine-dependent women with borderline personality disorder. *Cognitive and Behavioral Practice, 7*, 457-468.

Evans, K., Tyrer, P., Catalan, J., Schmidt, U., Davidson, K., & Dent, J. (1999). Manual-assisted cognitive-behaviour therapy (MACT): A randomized controlled trial of a brief intervention with bibliotherapy in the treatment of recurrent deliberate self-harm. *Psychological Medicine, 29*, 19-25.

Franks, C. M. & Wilson, G. T. (1974). *Annual review of behavior therapy: Theory and practice*. New York: Brunner/Mazel.

Freda, L. M. (1999). *Outcome of dialectical behavior therapy skills group in a partial hospital and intensive outpatient setting*. Doctoral dissertation. University of Hartford. Dissertation Abstracts International-B, 59/12, p. 6487, June 1999.

García, J. M. M. & Pérez, M. A. (2001). ACT as a treatment for psychotic symptom. The case of auditory hallucinations. *Analisis y Modificación de Conducta*, 27, 455-472.

Geiser, D. S. (1992). *A comparison of acceptance-focused and control-focused psychological treatments in a chronic pain treatment center*. Doctoral dissertation. University of Nevada, Reno. Dissertation Abstracts International-B 54/02, p. 1096, Aug 1993.

Gifford, E. (2002). *Acceptance based treatment for nicotine dependent smokers: Altering the regulatory functions of smoking related affect, physiological symptoms, and cognition..* Doctoral dissertation. University of Nevada, Reno.

Greenspoon, J. (1955). The reinforcing effect of two spoken sounds on the frequency of two responses. *American Journal of Psychology*, 68, 409-416.

Hayes, S. C. (1987). A contextual approach to therapeutic change. In N. Jacobson (Ed.), *Psychotherapists in clinical practice: Cognitive and behavioral perspectives* (pp. 327-387). New York: Guilford Press.

Hayes, S. C. (1993). Analytic goals and the varieties of scientific contextualism. In S. C. Hayes, L. J. Hayes, H. W. Reese, & T. R. Sarbin (Eds.), *Varieties of scientific contextualism* (pp. 11-27). Reno, NV: Context Press.

Hayes, S. C. (2002). On being visited by the vita police: A reply to Corrigan. *The Behavior Therapist*, 25, 134-137.

Hayes, S. C., Barnes-Holmes, D., & Roche, B. (2001) (Eds.), *Relational Frame Theory: A Post-Skinnerian account of human language and cognition*. New York: Plenum Press.

Hayes, S. C., Bissett, R. T., Zettle, R. D., Rosenfarb, I. S., Cooper, L. D., & Grundt, A. M. (1999). The impact of acceptance versus control rationales on pain tolerance. *The Psychological Record, 49*, 33-47.

Hayes, S. C., Masuda, A., & De May, H. (in press). Acceptance and Commitment Therapy and the third wave of behavior therapy. *Gedragstherapie (Dutch Journal of Behavior Therapy)*

Hayes, S. C., Pankey, J., Gifford, E. V., Batten, S., and Quiñones, R. (2002) Acceptance and Commitment Therapy in the treatment of experiential avoidance disorders. In T. Patterson (Ed.), *Comprehensive handbook of psychotherapy (Volume 2): Cognitive / behavioral / functional approaches*. New York: Wiley.

Hayes, S. C. Strosahl, K. D., & Wilson, K. G. (1999). *Acceptance and Commitment Therapy: An experiential approach to behavior change*. New York: Guilford Press.

Hayes, S. C., Wilson, K. G., Gifford, E., Bissett, R., Batten, S., Piasecki, M., Byrd, M. & Gregg, J. (May 2002). *The use of Acceptance and Commitment Therapy and 12-Step Facilitation in the treatment of polysubstance abusing heroin addicts on methadone maintenance: A randomized controlled trial*. Paper presented at the meeting of the Association for Behavior Analysis, Toronto.

Hayes, S. C., Wilson, K. G., Gifford, E. V., Follette, V. M., & Strosahl, K. (1996). Emotional avoidance and behavioral disorders: A functional dimensional approach to diagnosis and treatment. *Journal of Consulting and Clinical Psychology, 64*, 1152-1168.

Heffner, M., Sperry, J., Eifert, G. H. & Detweiler, M. (2002). Acceptance and Commitment Therapy in the treatment of an adolescent female with anorexia nervosa: A case example. *Cognitive and Behavioral Practice, 9*, 232-236.

Heimberg, R. G., Salzman, D. G., Holt, C. S., & Blendell, K. A. (1993). Cognitive-behavioral group treatment for social phobia: Effectiveness at five-year follow-up. *Cognitive Therapy & Research, 17*, 325-339.

Huerta, F. R., Gomez, S. M., Molina, A. M. M., & Luciano, M. C. S. (1998). Generalized anxiety: A case study. *Analisis y Modificacion de Conducta*, 24, 751-766.

Jacobson, N. S. & Christensen, A. (1996). *Integrative couple therapy: Promoting acceptance and change*. New York: Norton.

Jacobson, N. S., Christensen, A., Prince, S. E., Cordova, & Eldridge, K. (2000). Integrative behavioral couple therapy: An acceptance-based, promising new treatment for couple discord. *Journal of Consulting and Clinical Psychology*, 68, 351-355.

Koerner, K. & Dimeff, L. A. (2000). Further data on dialectical behavior therapy. *Clinical Psychology: Science and Practice*, 7, 104-112.

Koerner, K. & Linehan, M. M. (2000). Research on dialectical behavior therapy for patients with borderline personality disorder. *The Psychiatric Clinic of North America*, 23, 151-167.

Kohlenberg, R. H., Kanter, J. W., Bolling, M. Y. Parker, C., & Tsai, M. (2002). Enhancing cognitive therapy for depression with functional analytic psychotherapy: Treatment guidelines and empirical findings. *Cognitive & Behavioral Practice*, 9, 213-229.

Kohlenberg, R. J. & Tsai, M. (1991). *Functional Analytic Psychotherapy: Creating intense and curative therapeutic relationships*. New York: Plenum.

Kohlenberg, R. J. & Tsai, M. (1994). Improving cognitive therapy with functional analytic psychotherapy: Theory and case study. *The Behavior Analyst*, 17, 305-319.

Koons, C. R., Robins, C. L., Tweed, J. L., Lynch, T. R., Gonzalez, A. M., & Morse, J. Q. (2001). Efficacy of dialectical behavior therapy in women veterans with borderline personality disorder. *Behavior Therapy*, 32, 371-390.

Korn, Z. (1997). Effects of acceptance/commitment and cognitive-behavioral interventions on pain tolerance. Doctoral dissertation. Hofstra University. *Dissertation Abstracts International-B*, 58/04, p. 2126, Oct 1997.

Leerer, C. G. (1996). Outcomes of inpatient cognitive-behavioral treatment of borderline personality disorder. Doctoral dissertation. Northeastern University. *Dissertation Abstracts International-B*, 58/04, p. 2126, Oct 1997.

Levitt, J. (2002). *The effects of acceptance vs. suppression of emotion on subjective and psychophysiological response to CO2 challenge in patients with panic disorder*. Doctoral dissertation. Boston University.

Linehan, M. M. (1993). *Cognitive-behavioral treatment of borderline personality disorder*. New York: Guilford.

Linehan, M. M., Armstrong, H. E., Suarez, A., Allmon, D., & Heard, H. L. (1991). A Cognitive-behavioral treatment of chronically parasuicidal borderline patients. *Archives of General Psychiatry*, 48, 1060-1064.

Linehan, M. M., Dimeff, L. A., Reynolds, S. K., Comtois, K. A., Welch, S. S., & Heagerty, P. (2002). Dialectical behavior therapy versus comprehensive validation therapy plus 12-step for the treatment of opioid dependent women meeting criteria for borderline personality disorder. *Drug and Alcohol Dependence*, 67, 13-26.

Linehan, M. M., Heard, H. L., & Armstrong, H. E. (1993). Naturalistic follow-up of a behavioral treatment for chronically parasuicidal borderline patients. *Archives of General Psychiatry*, 50, 971-974.

Linehan, M. M., Schmidt, H. I., Dimeff, L. A., Craft, J. C., Katner, J., & Comtois, K. A. (1999). Dialectical behavior therapy for patients with borderline personality disorder and drug-dependence. *American Journal on Addiction*, 8, 279-292.

Linehan, M. M., Tutek, D. A., Heard, H. L., & Armstrong, H. E. (1994). Interpersonal outcome of cognitive behavioral treatment for chronically suicidal borderline patients. *American Journal of Psychiatry*, 151, 1771-1776.

Low, G., Jones, D., Duggan, C., Power, M., & MacLeod, A. (2001). The treatment of deliberate self-harm in borderline personality disorder using dialectical behavior therapy: A pilot study in a high security hospital. *Behavioural and Cognitive Psychotherapy, 29*, 85-92.

López, S. & Arco, J.L. (2002). ACT as an alternative for patients that do not respond to traditional treatments: A case study. *Análisis y Modificación de Conducta, 28*, 585-616.

Luciano, M. C. S. & Cabello, F. L. (2001). Bereavement and Acceptance and Commitment Therapy (ACT). *Análisis y Modificación de Conducta, 27*, 399-424.a

Luciano, M. C. S., Gómez, S. M., Hernández, M. L., & Cabello, F. L. (2001). Alcoholism, experiential avoidance, and Acceptance and Commitment Therapy (ACT). *Análisis y Modificación de Conducta, 27*, 333-372.

Luciano, M. C. S., & Gutierrez, O. M. (2001). Anxiety and Acceptance and Commitment Therapy (ACT). *Análisis y Modificación de Conducta, 27*, 373-398.

Luciano, M. C. S., Visdómine, J. C. L., Gutiérrez, O. M., & Montesinos, F. M. (2001). Acceptance and Commitment Therapy and chronic pain. *Análisis y Modificación de Conducta, 27*, 473-502.

Lynch, T. R., Morse, J. Q., Mendelson, T., & Robins, C. J. (2003). Dialectical behavior therapy for depressed older adults: A randomized pilot study. *American Journal of Geriatric Psychiatry, 11*, 33-45.

Manning, S. Y. (1996). *The effects of a cognitive-behavioral treatment on females with borderline personality disorder*. Doctoral dissertation. University of South Carolina. Dissertation Abstracts International-A, 57/07, p. 2880, Jan 1997.

Marlatt, G. A. (2002). Buddhist philosophy and the treatment of addictive behavior. *Cognitive & Behavioral Practice, 9*, 44-49.

Martell, C. R., Addis, M. E., & Jacobson, N. S. (2001). *Depression in context: Strategies for guided action*. New York: W. W. Norton.

McCullough, J. P. Jr. (2000). *Treatment for chronic depression: Cognitive Behavioral Analysis System of Psychotherapy (CBASP)*. New York: Guilford Press

Metzler, C.W., Biglan, A., Noell, J., Ary, D.V., & Ochs, L. (2000). A randomized controlled trial of a behavioral intervention to reduce high-risk sexual behavior among adolescents in STD clinics. *Behavior Therapy, 31*, 27-54.

Miller, A. L., Wyman, S. E., Huppert, J. D., Glassman, S. L., & Rathus, J. H. (2000). Analysis of behavioral skills utilized by suicidal adolescents receiving dialectical behavior therapy. *Cognitive and Behavioral Practice, 7*, 183-187.

Montesinos, F. M., Hernández, B. M., & Luciano, M. C. S. (2001). Application of Acceptance and Commitment Therapy (ACT) in cancer patients. *Análisis y Modificación de Conducta, 27*, 503-524.

Paul, P. H., Marx, B. P., & Orsillo, S. M. (1999). Acceptance-based psychotherapy in the treatment of an adjudicated exhibitionist: A case example. *Behavior Therapy, 30*, 149-162.

Rathus, J. H., & Miller, A. L. (2002). Dialectical behavior therapy adapted for suicidal adolescents. *Suicide and Life-Threatening Behavior, 32*, 146-157.

Robins, C. J., Ivanoff, A. M., & Linehan, M. M. (2001). Dialectical behavior therapy. In W. J. Livesley (Eds.), *Handbook of personality disorder: Theory, research, and treatment* (pp. 437-459). New York: Guilford Press.

Roemer, L. & Orsillo, S. M. (2002). Expanding our conceptualization of and treatment for generalized anxiety disorder: Integrating mindfulness/acceptance-based approaches with existing cognitive-behavioral models. *Clinical Psychology: Science & Practice, 9*, 54-68.

Safer, D. L., Telch, C. F., & Agras, W. S. (2001a). Dialectical behavior therapy adapted for bulimia: A case report. *International Journal of Eating Disorders, 30*, 101-106.

Safer, D. L., Telch, C. F., & Agras, W. S. (2001b). Dialectical behavior therapy for bulimia nervosa. *American Journal of Psychiatry, 158*, 632-634.

Scheel, K. R. (2000). The empirical basis of dialectical behavior therapy: Summary, critique, and implications. *Clinical Psychology: Science and Practice, 7*, 68-86.

Segal, Z. V., Williams, J. M. G., & Teasdale, J. D. (2002). *Mindfulness-based cognitive therapy for depression: A new approach to preventing relapse*. New York: Guilford Press.

Springer, T., Lohr, N. E., Buchtel, H. A., & Silk, K. R. (1996). A preliminary report of short-term cognitive-behavioral group therapy for inpatients with personality disorders. *Journal of Psychotherapy Practice and Research, 5*, 57-71.

Strosahl, K. D., Hayes, S. C., Bergan, J., & Romano, P. (1998). Does field based training in behavior therapy improve clinical effectiveness? Evidence from the Acceptance and Commitment Therapy training project. *Behavior Therapy, 29*, 35-64.

Telch, C. F., Agras, W. S., & Linehan, M. M. (2001). Dialectical behavior therapy for binge eating disorder. *Journal of Consulting and Clinical Psychology, 69*, 1061-1065.

Telch, C. F., Agras, W. S., & Linehan, M. M. (2000). Group dialectical behavior therapy for binge-eating disorder: A preliminary, uncontrolled trial. *Behavior Therapy, 31*, 569-582.

Truax, C. B. (1968). Therapist interpersonal reinforcement of client self-exploration and therapeutic outcome in group psychotherapy. *Journal of Counseling Psychology, 15*, 225-231

Turner, R. M. (2000). Naturalistic evaluation of dialectical behavior therapy-oriented treatment for borderline personality disorder. *Cognitive and Behavioral Practice, 7*, 413-419.

van den Bosch, L. M., Verheul, R., Schippers, G. M., & van den Brink, W. (2002). Dialectical behavior therapy of borderline patients with and without substance use problems: Implementation and long-term effects. *Addictive Behavior, 27*, 911-923.

Zaldívar, F. & Hernández, M. (2001). Acceptance and Commitment Therapy (ACT): Application to experiential avoidance with agoraphobic form. *Análisis y Modificación de Conducta, 27*, 425-454.

Zettle, R. D. (in press). Acceptance and Commitment Therapy (ACT) vs. systematic desensitization in treatment of mathematics anxiety. *The Psychological Record*.

Zettle, R. D., & Hayes, S. C. (1986). Dysfunctional control by client verbal behavior: The context of reason-giving. *The Analysis of Verbal Behavior, 4*, 30-38.

Zettle, R. D., & Raines, J. C. (1989). Group cognitive and contextual therapies in treatment of depression. *Journal of Clinical Psychology, 45*, 438-445.

Authors Footnote

Requests for reprints should be addresses to Steven C. Hayes, Department of Psychology
/296, University of Nevada, Reno, NV 89557-0062.

Table 1

Available Outcome Evidence on Dialectical Behavior Therapy, Acceptance and Commitment Therapy, and Functional Analytic Psychotherapy

Study	Treatment	Disorder	Format/Length	Assessment	Key Findings
<u>Randomized Controlled Trials</u>					
Bach & Hayes, 2002	ACT +TAU (<i>n</i> = 40) TAU (<i>n</i> = 40)	Positive psychosis symptoms	Three 45-minute Individual sessions (2 weeks)	Pre, Post, 4MFU	ACT + TAU > TAU on rate of rehospitalization over a 4-month follow-up period; ACT participants showed higher symptom reporting and lower symptom believability.
Block, 2002	ACT (<i>n</i> = 13) CBGT (<i>n</i> = 13) Control (<i>n</i> = 13)	SP	Three 2-hour Group Sessions	Pre, Post, 2MFU	ACT > Control on willingness to experience anxiety, behavioral avoidance during public speech, anxiety during speech. CBGT > Control on willingness to experience anxiety, self-report anxiety and avoidance. ACT > CBGT on behavioral exposure.
Bond & Bruce, 2000	ACT (<i>n</i> = 30) IPP (<i>n</i> = 30) Wait-list (<i>n</i> = 30)	No clinical population (work-site stresses)	Three half-day Group sessions (14 weeks)	Pre, Post, 3MFU	ACT > IPP, Wait-list on stress and psychological health at post and follow-up; Outcomes achieved by ACT were mediated by an increased acceptance of undesirable thoughts and feelings.
Gifford, 2002	ACT (<i>n</i> = 27) NRT (<i>n</i> = 31)	Chronic smoking	Individual (20 weeks)	Pre, Post, 12MFU	No difference at post; ACT > NRT on smoking at follow-up on smoking outcomes. Outcomes mediated by decreased avoidance and inflexibility.
Hayes et al., 2002	MM + ACT (<i>n</i> = 44) MM + 12S (<i>n</i> = 42) MM (<i>n</i> = 38)	SUD (Poly-substance abuse)	Individual/Group (16 weeks)	Pre, mid, Post, 6MFU	No difference at post; ACT > MM on opiate and total drug use, 12S > MM on total drug use at follow-up.
Koons et al., 2001	DBT (<i>n</i> = 10) TAU (<i>n</i> = 10)	BPD	Individual/Group (6 months)	Pre, Mid, Post	DBT > TAU on suicidal ideation, depression, hopelessness, anger.
Linehan et al., 1991	DBT (<i>n</i> = 24) TAU (<i>n</i> = 23)	BPD	Individual/Group (12 months)	Pre, Post, 6MFU, 12MFU	DBT > TAU on parasuicidal acts, hospitalization, treatment retention; DBT gains maintained at follow-ups.
Linehan et al., 1999	DBT+ PT (<i>n</i> = 12) TAU (<i>n</i> = 16)	BPD +SUD	Individual/Group modified for SUD (12 months)	Pre, 4, 8-months, Post, 4MFU	DBT > TAU on substance use, social adjustment, treatment retention throughout treatment and follow-up.
Linehan et al., 2002	DBT +PT (<i>n</i> = 11) CVT+12S+PT (<i>n</i> = 12)	BPD +SUD	Individual/Group modified for SUD (12 months)	Pre, 4, 8-months, Post, 4MFU	DBT = CVT+12S on percentage of opiate user at 8-month; DBT gain maintained, but not CVT+12S at post and follow-up.

Safer et al., 2001b	DBT ($n = 16$) Wait-list ($n = 15$)	BN	Individual, modified for BN (20 weeks)	Pre, Post	DBT > Wait-list on binge/purge
Telch et al., 2001	DBT ($n = 22$) Wait-list ($n = 22$)	BED	Group, modified for BED (20 weeks)	Pre, Post, 3MFU, 6MFU	DBT > Wait-list on percentage of binge eaters; DBT gain faded at follow-ups.
van den Bosch et al., 2002	DBT ($n = 27$) TAU ($n = 31$)	BPD with or without SUD	Individual/Group (12 months)	Pre, Post, 18MFU	DBT > TAU on parasuicidal acts, treatment retention regardless of clients had SUD; No group difference in substance use.
Zettle, in press	ACT ($n = 12$) SD ($n = 12$)	Math anxiety	Individual (6 weeks)	Pre, Post, 2MFU	ACT = SD on math and test anxieties
Zettle & Hayes, 1986	ACT ($n = 6$) CT ($n = 12$)	MDD	Individual (12 weeks)	Pre, Post, 2MFU	ACT > CT on depression, automatic thoughts at post and follow-up.
Zettle & Raines, 1989	ACT ($n = 11$) CT ($n = 10$) CT with distancing absent ($n = 10$)	MDD	Group (12 weeks)	Pre, Post, 2MFU	All conditions decreased depression at post- and follow-up; Significant differences were found in ACT and CT conditions.
<u>Quasi-Experimental Designs</u>					
Barley et al., 1993	$n = 130$ DBT ($n = \text{unknown}$) TAU ($n = \text{unknown}$)	PDs	Individual/Group	Monthly over a 43-month period	DBT unit > TAU unit on monthly parasuicidal behavior rate.
Bohus et al., 2000	DBT ($n = 11$; pre-post design)	BPD	Individual/Group (3 months)	Pre, Post	Reduction in parasuicidal behavior, depression, dissociation, anxiety, global distress
Geiser, 1992	ACT ($n = 40$) CT ($n = 40$)	Pain	Twenty 60-minute groups (6 weeks)	Pre, Post, 3MFU	ACT = CT on pain at post and follow-up.
Kohlenberg et al., 2002	FAP + CT ($n = 28$) CT ($n = 18$)	MDD	Individual (6 months)	Pre, Post, 3MFU	FAP + CT > CT on depression & general psychological health; FAP + CT > CT on general functioning at follow-up.
Low et al., 2001	DBT ($n = 10$; pre-post design)	Partial BPD	Individual/Group (12 months)	Pre, Post, 3MFU, 6MFU	Reduction in self-harm behaviors at post and follow-ups.
Miller et al., 2000	DBT ($n = 16$; pre-post design)	Partial BPD	Individual, family skills (12 weeks)	Pre, Post	Improves in identity issue, impulsivity, emotional stability, and interpersonal problems.

Rathus & Miller, 2002	DBT (<i>n</i> = 29) TAU (<i>n</i> = 82)	BPD and other mental disorders	Individual/family therapy (12 weeks)	Pre, Post	DBT > TAU on rehospitalization, treatment retention, suicidal ideation, general psychiatric symptoms, and BPD features, despite DBT participants was more severe than TAU at post.
Strosahl et al., 1998	Clients of ACT trained clinicians (<i>n</i> = 61 pre; 57 post) and non ACT trained clinicians (<i>n</i> = 111 pre; 92 post)	Outpatient problems across the range	Varied	Pre; 5 months later	Clients of ACT trained clinicians > coping and faster completion than clients of clinicians not trained in ACT (effectiveness study)
Telch et al., (2000)	DBT (<i>n</i> = 11; pre-post design)	BED	Group, modified for BED (20 weeks)	Pre, Post, 3MFU, 6MFU	Reduction in binge eating at post and maintained at follow-ups.
<u>Case Studies</u>					
Batten & Hayes, in press	ACT (<i>n</i> = 1)	PTSD +SUD	Individual (17 months)	every three months, and 3, 6, 12MFUs	Abstinence at 7thmonth, lower use of substance maintained at follow-ups
Carrascoso, 2000	ACT (<i>n</i> = 1)	Panic Disorder	Individual (12 sessions)	every session	Reduction in panic attack and avoidance/escape behavior
Dimeff et al., 2000	DBT (<i>n</i> = 2)	BPD + SUD	Individual (12 months)	Pre, Mid, Post	Both participants became abstinent at mid-point, and maintained at post.
Garcia & Perez, 2001	ACT (<i>n</i> = 1)	Psychotic symptom	Individual (9 weeks)	every session	Reduction in auditory hallucination; Relapse reported at follow-ups.
Hayes, 1987	ACT (<i>n</i> = 12)	ADs	Individual (10-40sessions)	Pre, Post, 4MFU	Reductions in anxiety problems
Hayes, Masuda, & DeMay, in press	ACT (<i>n</i> = 1)	MDD	Individual (17 sessions)	every session	Reduction in depression, experiential avoidance
Heffner et al., 2002	ACT (<i>n</i> = 1)	AN	Individual (12 sessions)	every session	Reduction in anorexic symptoms, and Increase in weight.
Huerta et al., 1998	ACT (<i>n</i> = 1)	GAD	Individual (9 weeks)	Pre, Post, 1MFU, 12MFU	Reduction in self-report anxiety; Gain maintained at follow-ups.
Kohlenburg & Tsai, 1994	FAP + CT (<i>n</i> = 1)	MDD	Seven FAP + CT Individual	Weekly	After the introduction of FAP, depression dropped immediately, and maintained at post and follow-ups.
Lopez & Arco, 2002	CT followed by ACT (<i>n</i> = 1)	MDD	13 session of CT, followed by 5 sessions of ACT	every session	Reduction in BDI during ACT after a failure to respond to CT

Luciano & Cabello, 2001	ACT (<i>n</i> = 1)	Bereavement-related Depression	Individual (25 sessions)	every session, 1MFU, 2MFU, 4MFU	Reduction in depression; Increase in acceptance of the loss and value-related actions.
Luciano, Gomez et al., 2001	ACT (<i>n</i> = 1)	Alcoholism	Individual (21 sessions)	every session	Reduction in drinking episodes; Abstinence at end of treatment.
Luciano & Gutierrez, 2001	ACT (<i>n</i> = 1)	Marital Distresses	Individual (15 sessions)	every session, 2MFU, 4.5MFU	Increase in decision making in the area of work, family, and marital relationships
Luciano, Vusdomine et al., 2001	ACT (<i>n</i> = 2)	Chronic Pain	Individual (12-13 sessions)	every session	Increases in value-oriented action; Reductions in attempts to control pain, anxiety, & worries.
Montesinos et al., 2001	ACT (<i>n</i> = 1)	Copying with Chronic illness	Individual (20 sessions)	every session	Increases in reporting acceptance of negative thoughts and feelings; reduction in anti-anxiety medication use
Paul et al., 1999	FAP + ACT (<i>n</i> = 1)	Exhibitionism	Individual (10 months)	Monthly, 6MFU	The reduction of act of exposure, public masturbation, depression, anxiety, and drug use at post and follow-up.
Safer et al., 2001a	DBT (<i>n</i> = 1)	BN	Individual (20 weeks)	Weekly	Both binge and purge episodes dropped to zero at 5 th week, and maintained through treatment.
Zaldivar & Hernandez, 2001	ACT (<i>n</i> = 1)	Agoraphobia	Individual (26 sessions)	every session, 2FUs	Reduction in panic episodes; Increase in valued-oriented actions

Note. ACT = acceptance and commitment therapy; ADs = anxiety disorders; AN = anorexia nervosa; BED = binge eating disorder; BN = bulimia nervosa; BPD = borderline personality disorder; CBGT = cognitive behavioral group therapy; CT = cognitive therapy; DBT = dialectical behavior therapy; GAD = generalized anxiety disorder; PT = pharmacological therapy; CVT = comprehensive validation therapy; FAP = functional analytic psychotherapy; IPP = innovation promotion program; MDD = major depressive disorder; MM = methadone maintenance; NRT = nicotine replacement therapy; PDs = personality disorders; PTSD = post-traumatic stress disorder; SD = systematic desensitization; SP = social phobia; SUD = substance use disorder; TAU = treatment as usual; 12S = Twelve-step facilitation.