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The Impact of CBT and ACT Models Using Psychology Trainee Therapists

A Preliminary Controlled Effectiveness Trial

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The present study compares the impact of individualized treatment provided by trainee therapists based on a traditional cognitive behavior therapy (CBT) and acceptance and commitment therapy (ACT) model. Fourteen therapists were given initial training in CBT and ACT. Outpatients ($N = 28$) were randomized to either approach, with each therapist treating one client within each model, linked to a functional analysis. Clients treated within an ACT model showed better symptom improvement than the CBT clients, despite the fact that students felt initially less knowledgeable about ACT and were more fearful throughout when it was used. CBT improved client self-confidence more rapidly than ACT, and ACT improved acceptance more than CBT. Both processes predicted better outcomes; acceptance remained predictive when controlling for self-confidence but not vice versa. Overall, therapists with limited training in both models got better results with ACT and the processes of change fit with the ACT model.

Keywords: *acceptance and commitment therapy; cognitive behavior therapy; acceptance; therapist training; processes of change*

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Cognitive behavior therapy (CBT) dominates the list of empirically supported treatments for a wide variety of psychological disorders. Systematic reviews of studies suggest that cognitive-behavioral approaches are effective, for example, in the treatment of depression, generalized anxiety disorder, panic disorder with agoraphobia and without agoraphobia, posttraumatic stress disorder, sexual dysfunctions, hypochondriasis, and bulimia nervosa (Nathan & Gorman, 2002; Roth & Fonagy, 2005). Among the specific procedures that are most empirically supported are such methods as exposure, applied relaxation, social skills training, and problem-solving skills training (Nathan & Gorman, 2002; Roth & Fonagy, 2005).

A number of new "third-generation" behavioral and cognitive therapies have recently emerged (Hayes, 2004) based on such processes as acceptance, interoceptive exposure, mindfulness, and values (Hayes, Follette, & Linehan, 2004). One of these is acceptance and commitment therapy (ACT, said as a single word *act*; Hayes, Strosahl, & Wilson, 1999). ACT is interesting because it is based on a comprehensive program in human cognition (Hayes, Barnes-Holmes, & Roche, 2001) and yet is part of the behavioral tradition. ACT uses acceptance and mindfulness processes, and commitment and behavior change processes, to produce greater psychological flexibility (Hayes, 2004). ACT purports to be more a new model of therapy than a set of techniques. One prominent feature of ACT is that it is based on a contextual form of behavior analysis and emphasizes the functions of problematic behaviors. Thus, although some approaches used in ACT are relatively uncommon in traditional CBT, such as values work and cognitive defusion or mindfulness exercises, others such as exposure and homework are common in traditional CBT but are applied in a different way.

Although there are far fewer randomized controlled trials with ACT than with traditional CBT, there is a growing body of evidence that ACT is an effective approach (for a recent meta-analysis, see Hayes, Luoma, Bond, Masuda, & Lillis, 2006). The early evidence is surprisingly broad, covering such areas as psychosis (Bach & Hayes, 2002; Gaudiano & Herbert, 2006), work stress and burnout (Bond & Bunce, 2000; Hayes, Bissett, et al., 2004), addiction (Gifford et al., 2004; Hayes, Wilson, et al., 2004), pain (Dahl, Wilson, & Nilsson, 2004; McCracken, Vowles, & Eccleston, 2005), and even epilepsy (Lundgren, Dahl, Melin, & Kees, in press), among others. Furthermore, there have been successful effectiveness trials for clients seen in general outpatient practice (Strosahl, Hayes, Bergan, & Romano, 1998). This fits with the claim that ACT is a general new model and suggests that it might be useful to compare ACT and CBT as broad approaches.

So far, only a few randomized trials have directly compared ACT and traditional CBT or CT (e.g., Branstetter, Wilson, Hildebrandt, & Mutch, 2004; Zettle & Hayes, 1986; Zettle & Rains, 1989). These studies have been done with specific populations and problems. So far, the evidence is supportive for the ACT model (Hayes et al., 2006), and other such studies are underway, but it will take several years before possible broad differences in these two models can begin to be evaluated if only highly specific, syndrome-focused studies are conducted.

Furthermore, even a lengthy series of such studies leaves untouched the likely effectiveness of the two approaches in general clinical use. Wilson (1995) has noted a core feature of the problem of generalizing from specific efficacy studies to clinical practice:

> The therapists in controlled trials are usually highly trained. They are probably chosen because they are known to be competent. Research on the dissemination and exportability of the treatment evaluated in controlled trials will need to examine how effective the treatments prove to be when administered by therapists with different degree of training and expertise. (p. 183)

Thus, one meaningful way to begin to test the broad differences between these two models is to do so in controlled effectiveness trials but not just those using highly trained and expert therapists because the field of clinical practice is much more diverse.

So far, the ACT effectiveness trials (e.g., McCracken et al., 2005; Strosahl et al., 1998) have used highly trained therapists and extensive training. For example, Strosahl et al. (1998) showed that experienced therapists exposed to 30 hours of ACT training and monthly supervision for a year produced better outcomes across a range of normal outpatient problems than those achieved by similar therapists in the same agency not trained in the ACT model.

As Wilson (1995) notes above, when new methods are implemented, it is also important not to merely examine their impact using highly trained therapists who agree with the model, such as those extensively trained by the originators in funded research. Therapists or psychology students in training provide an interesting alternative group. New methods can be difficult to learn, especially if the underlying model is counterintuitive or conflicts with previous training. By using beginning therapists, these aspects can be disambiguated to a degree and the relationship between controlled amounts of training and resultant effectiveness can be examined. This was done in the present study by comparing effectiveness of traditional CBT

and ACT models using new psychology student therapists just learning each model. It was expected that both models would be equally effective. In addition to this, this effectiveness trial investigated the effect of a relatively brief training and intervention in CBT and ACT models. We wanted to increase our knowledge of the kind of training needed in CBT and ACT to get significant psychological effects.

Method

Participant Number, Assignment, and Characteristics

This study was done as a part of the psychotherapy training given to the master's level students in psychology at the University of Tampere, Finland. Clients were recruited through a newspaper advertisement, which stated that psychology students were seeking psychotherapy clients for a research project investigating the efficacy of psychotherapy methods. The cost for the client was 10 euros per session. The first 28 people who contacted the clinic through phone or e-mail were admitted to the study—there were no inclusion or exclusion criteria beyond a desire for outpatient psychotherapy. One participant dropped out before the first session and was replaced by the next client on the list. The number of participants was limited to 28 because 14 student therapists were taking part. Thus, the sample size was determined by the number of available junior therapists. Pairs ($N = 14$) matched on gender and age were randomly assigned to therapists. One member of each pair was randomly assigned to be treated either within a traditional CBT or ACT model; thus, each therapist had one CBT and one ACT client.

Basic demographic information was collected through a questionnaire at the beginning of the study. Participant characteristics and reasons for seeking treatment are described in Table 1. Of the 28 clients, 25 were women. The mean age was 41.8 years ($SD = 13.2$) and ranged from 22 to 64. Using a Visual Analogy scale (VAS) from 0 to 10 with the high value meaning higher motivation, clients in the two conditions were equally motivated to make changes in their lives (CBT: $M = 8.9$, $SD = 1.4$; ACT: $M = 8.7$, $SD = 1.0$).

The most common stated reason for seeking treatment was depression and mood problems (18 out of 28; 64%), and interpersonal problems (16 out of 28; 57%). Other common reasons for seeking treatment were anxiety, work distress, and sleep problems (Table 1). Specific psychiatric diagnoses were not generated in this effectiveness study because the treatment decisions were problem focused, not syndrome focused. Most participants were working (64%), but others were retired (18%), on sick leave (7%), or

Table 1
Background Information and Reasons Given by the Clients for Seeking Treatment

	CBT	ACT
Female/male	12/2	13/1
Age	42.43 (12.98)	41.21 (13.81)
Living alone	5	6
Earlier treatments	7	10
Medication	8	7
Reasons for seeking treatment		
Depression and mood problems	8 (57%)	10 (71%)
Interpersonal problems (including couple distress)	8 (57%)	8 (57%)
Anxiety and fear problems	6 (43%)	3 (21%)
Work distress	4 (29%)	2 (14%)
Sleep problems	2 (14%)	2 (14 %)
Problems with guilt	2 (14%)	2 (14%)
Self-confidence problems	1 (7%)	2 (14%)
Economic problems	2 (14%)	0
Obsessive-compulsive problems	1 (7%)	1 (7%)
Chronic pain	1 (7%)	0

not working because they were students or they were out of work (11%). The overall Global Severity Index (GSI) of the SCL-90 for the participants was 1.18, which is within .1 to .25 standard deviations of the mean for outpatients in the U.S. community or college clinics (Derogatis & Cleary, 1977; Todd, Deane, & McKenna, 1997) and within .6 of a standard deviation of the mean for Finnish psychiatry outpatient sample ($M = 1.56$, $SD = .61$; Holi, Sammallahti, & Aalberg, 1998). Although slightly healthier than the clinical norm, both values were well above the nonclinical norms, as were the Visual Rating scales of mood, life satisfaction, and self-confidence. Mean values varied from 44 to 49 on these 0 to 100 visual scales (in which a lower number indicates more problems) compared with values from 72 to 75 for random samples ($N = 540$) drawn from Finnish companies (Ojanen, 2000; Sjögren et al., 2006).

Between-group differences at the beginning of the treatment were analyzed using the Mann-Whitney U test (Green, Salkind, & Akey, 2000). There were no significant differences in any variables between the groups at the beginning of the treatment.

Therapists

The mean age of the 14 student therapists was 26.3 years (*SD* = 2.3, range = 23-32). The majority (*n* = 13) were women; they had studied psychology and other subjects at the Faculty of Social Sciences about 3 to 4 years. During their master's studies, before taking the intervention training, students had studied assessment methods (5 credits) and had taken a course in interviewing skills (3 credits). During assessment training students had interviewed 1 to 2 clients, but they had never used any intervention procedures during their training at the department. Seven of the fourteen therapists had some prior experience working with clients with psychological disorders (e.g., voluntary work at different organizations). Three of the fourteen therapists had received some training in psychotherapy in addition to formal studies in psychology. Four of the fourteen therapists had themselves received psychological treatment. Thus, about half of the student-therapists had no prior experience of psychotherapy when entering the intervention training, and the rest had very limited experience.

Measures

Client measures. The client outcome data were collected three times: between Session 1 and 2, which were assessment sessions; after the last treatment session (about 2 months from the first session, *M* = 59.5 days, *SD* = 1.6); and 6 months after treatment completion (*M* = 177.8 days, *SD* = 2.9). Because of the range of problems, the SCL-90, a broad self-report checklist of psychopathological symptoms (Holi et al., 1998) was used as a primary outcome measurement. Secondary outcome measures were the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961), the Social Adaptation Self-Evaluation Scale (SASS; Bosc, Dubini, & Polin, 1997) for social functioning, and two descriptive Visual Rating scales, 0 to 100 (Ojanen, 2000, 2001; Ojanen & Seppälä, 1997) measuring mood and life satisfaction. Finnish Descriptive Visual scales were used because they have shown to have good test-retest reliability (Sjögren et al., 2006), and extensive population comparison data from normal Finnish populations is available (Ojanen, 2000; Sjögren et al., 2006).

Process measures for ACT and CBT were acceptance and self-confidence, respectively. Acceptance was measured by the Acceptance and Action Questionnaire (AAQ-8), a shorter version of the AAQ-16 (Bond & Bunce, 2003; Hayes, Strosahl et al., 2004—see Table 2 for items), which measures experiential avoidance and inaction in the presence of difficult private

Table 2
Items for Measurement of Acceptance; Acceptance and Action Questionnaire (AAQ-8)

"I rarely worry about getting anxieties, worries, and feelings under control."
"I'm not afraid of my feelings."
"I am in control of my life."
"I am able to take action on a problem even if I am uncertain what is the right thing to do."
"When I feel depressed or anxious, I am unable to take care of my responsibilities."
"Despite doubts, I feel as though I can set a course in my life and then stick to it."
"If I compare myself to others, it seems to me that they manage their life better than me."
"If I get bored of a task, I can still complete it."

Note: All items are from Hayes, Strosahl, et al. (2004) except the last, which is from a revised version by Bond and Bunce (2003).

events. Self-confidence was assessed using a 0 to 100 Descriptive Visual scale (Ojanen, 2000, 2001; Ojanen & Seppälä, 1997). Self-confidence was chosen as a process measurement for CBT because traditional CBT commonly targets negative self-evaluations, and given the broad range of problems, a general measure of this process was needed.

Participants provided three kinds of satisfaction data. They were asked to keep a diary during the treatment in which they reported every day how satisfied they were with themselves on a scale of 0 to 10. During the last treatment session, the participants were asked through questionnaire whether they were willing to recommend the treatment to others ("yes" or "no") and how satisfied they were with the treatment (*very satisfied*, *quite satisfied*, *neither satisfied nor dissatisfied*, *quite dissatisfied*, *very dissatisfied*). Clients were told that these later evaluations would not be shown to the therapists.

Follow-up data collection was carried out by mail. In addition to the questionnaires and scales used earlier, questions in which the clients evaluated the treatments were also included. They were asked whether they could recommend the treatment to other people, how satisfied they were with the treatment, whether they had received other treatment during the follow-up period, and whether they felt that they needed psychological treatment at the time when the follow-up was done. Clients were told that these evaluations would not be shown to the therapists. If clients did not return follow-up measures they were called, sometimes more than once. In the end, there were no dropouts or missing data.

Therapist measures. Therapists were interviewed before and after the treatments. The interview took about 1 hour. Before the interviews they were asked to fill in the same questionnaires and scales as the clients in relation to themselves, before the first and after the last treatment session (BDI, SCL-90, SASS, AAQ-8, three descriptive Visual Rating scales). For both CBT and ACT, therapists were also asked, through a 0 to 10-point VAS measure, to evaluate each method regarding their felt skill level, fear, anxiety, and tension. After the treatment, the therapists were also asked through a VAS (0-10) how confident they felt using CBT and ACT, how much they were able to help the client, and how successful and satisfied they felt using the approaches. In addition to this, they were asked to estimate the client-therapist relationship with their CBT and ACT client (*very bad*, *quite bad*, *not good or bad*, *quite good*, *very good*).

Procedure

Training of the therapists and treatment of the clients were carried out during one semester, as a part of ordinary clinical teaching program that consisted of 20 hours of lectures and 30 hours of case supervision. Because the course was on evidence-based approaches, and there are more data on traditional CBT than ACT, the major part of the lecture time was devoted to teaching CBT approaches. In addition to 2 hours of lectures on behavioral principles and general issues related to psychotherapy, there were 12 hours of specific lectures on CBT and half of that, 6 hours, on ACT. The CBT lectures emphasized self-monitoring, exposure, problem solving, behavioral activation, social skills training, and progressive relaxation. Cognitive change techniques were not emphasized in this early course in view of their complexity and controversy about their effectiveness (e.g., Dimidjian et al., 2006), compared with these other procedures, which seemed more important to learn in a beginning course. The ACT lectures included general description of the model and description of the six key processes of ACT: value work, committed action, self as a context, defusion, acceptance, and contact with the present moment.

Both CBT and ACT approaches were taught using power point presentations, modeling, and case examples. Students read a 25-page CBT (Lehtonen & Lappalainen, 2005) and 60-page social skills manual (Lappalainen, Lehtonen, Hynninen, et al., 2004) that described a general working model for CBT and gave descriptions of exposure, self-monitoring, behavioral activation, problem solving, and social skills training. They also read a 39-page ACT-manual based on a Finnish ACT book (Lappalainen, Lehtonen,

Hayes, et al., 2004). The manual included a general description of ACT, nine metaphors, the observer exercise (Hayes et al., 1999, pp. 192-196), mindfulness and cognitive defusion exercises, and several forms for values work. The manual had chapters on values and barriers for valued living. In addition to this, during the semester the students read four to eight book chapters or articles based on their own choice. The great majority of those preselected and copied chapters was CBT-based.

During treatment, students received weekly supervision in groups of four to six students. Each supervision meeting took 3 hours. Each student received approximately 15 to 30 minutes of supervision for each case each week. There was no difference in time allotted to cases based on their assignment to CBT or ACT, and the supervision within each model was designed to be consistent with the model being applied to the particular case. Altogether, students had 10 supervision meetings during the study.

Supervisors had been trained and had experience in both traditional CBT and ACT procedures, but their experience was longer and more extensive with CBT. The supervisors expected that there would be no difference in outcome between the two conditions but thought there might be differences in the processes of change.

All clients were treated at the University Clinic, Department of Psychology. Prior the treatments the clients were informed that the treatment length would be 10 sessions. The actual mean number of treatment session was 9.6 (*SD* = .23, range = 7-10) for the CBT group, and 9.1 sessions (*SD* = .25, range = 8-10) for the ACT group. Each session lasted approximately 60 minutes.

The students had earlier taken a course in which they had learned the functional analytic clinical case model or case formulation (FACCM; Haynes & O'Brien, 2000). Before the students were allowed to use any treatment methods they were required to conduct a structured two-session long behavioral assessment to match the treatment techniques individually to each client, to establish rapport and to motivate the client for treatment.

The FACCM is a vector-graphic approach to functional analysis that includes problem behaviors, the importance and relations among behavior problems, the strength and direction of causal and noncausal functional relations, and the modifiability of causal variables. The FACCM was used to guide decisions about which variables should be analyzed more closely and which variables should be selected as treatment targets for an individual client. Thus, the therapists were instructed and supervised to make a problems list, followed by behavioral descriptions of the problems (in terms of thoughts, emotional and physiological reactions, and actions associated with

the problem). The therapist drew a picture showing in a graphical form how the problems in the problem list were related to each other. These were shared with the supervisor and then with the client. Based on the assessment, goals for the treatment were discussed with the clients either at the end of Session 2 or at the beginning of Session 3. On the whole, the FACCM seemed to be more difficult to fit to ACT than traditional CBT because the key causal processes in ACT are often shared among specific behaviors.

CBT or ACT procedures as such started in Session 3, after the functional analysis phase was completed. Depending on client assignment, supervisors instructed the therapists to use either specific CBT or ACT treatment methods with the client, based in each case on the FACCM. The therapists were told that, other than methods shared by both models, they were not allowed to use any CBT approaches for the ACT client and no ACT approaches for the CBT client. The importance of following the supervisors instructions were emphasized, both because of client safety and the desire to evaluate the two approaches. After each session, the therapist marked on a checklist those methods they had used during the session.

At the time this study was conducted, these therapist ratings had not been validated against blind reviews of audio or video sessions tapes of the session. However, subsequent research in our clinic has shown good correspondence between the checklist and independent observers ratings regarding the frequency of usage of the methods.

Table 3 presents a summary of the CBT and the ACT methods used during treatments as reported by the therapists. Most frequently reported methods were homework and exposure procedures in CBT, and client values work in ACT, but a wide variety of specific methods were used within each model. During the postinterview, the therapists were asked about the difficulties experienced during the treatments. A majority of the therapists did not report any special difficulties when using CBT approaches. Four reported difficulties in getting the client to do the homework. Eight of the fourteen therapists reported difficulties in discussing the ACT model with clients because of the short training time in ACT. Three therapists had experienced difficulties in getting the client to do ACT exercises and homework.

During the therapists interviews several questions related to allegiance of approaches were asked. At the beginning of the treatment there were no differences in preferences for the approaches. Five therapists preferred CBT, and five ACT. Four could not decide which they preferred. After treatment, 7 out of 14 therapists reported that both approaches were equally good. Five therapists thought ACT was a better treatment, and two believed CBT to be better. Ten of the therapists wanted to use both approaches in the future; three wanted to use just ACT, and one just CBT.

Table 3
CBT and ACT Methods Used During the Treatment as Reported by the Therapists

CBT		ACT	
Exposure external	13	Clarification of goals	42
Exposure covert	73	Clarification of workability of earlier solution	33
Self-observation	70	Value work: discussions and exercises	117
Behavioral activation	58	Control and acceptance issues	57
Problem solving	24	Concept of self-issues	30
Social skills training	40	Metaphors	46
Relaxation	17	Observer exercises	22
Homework	97	Mindfulness exercises	20
Questionnaires	27	Homework	73
Other	58	Questionnaires	32
		Other	46

Results

Analytic Strategy

Data were analyzed in two ways. Nonparametric statistical tests were the primary approach used because parametric statistics are subject to error in small sample size studies as a result of difficulties in properly modeling the underlying distributions, the impact of outliers, the inability to properly test analytic assumptions, and similar problems. The present study is underpowered to detect between-group effects, so the initial focus of the analysis was on the pattern of within-group differences from pre- to posttreatment, and pretreatment to follow-up. These were analyzed using Wilcoxon's Signed Ranks test (Green et al., 2000). Effect sizes values, either Cohen's *d* (Cohen, 1977) or partial eta squared, were calculated both between- and within-groups. For outcome variables in which one treatment group changed significantly ($p < .05$) and one did not, between-group differences were then analyzed using a one-tailed exact Mann-Whitney *U* test (Green et al., 2000) on the pre- to post- or pre- to follow-up difference scores for that measure.

Because nonparametric statistics are less commonly used in treatment studies, however, it seemed useful to supplement these fairly conservative initial analyses with a more conventional approach. Thus, we also conducted

a repeated measures analysis of covariance (RMANCOVA; Green et al., 2000) on the post and follow-up primary and secondary outcome scores using prescores as the covariate. In these analyses, overall group effects indicated that the two groups differed at both post and follow-up. Had phase-by-group effects occurred they would indicate that the groups showed differences but they were differentially strong between post or follow-up, but because none were even marginally significant, they will not be reported. Differences below $p = .1$ were interpreted throughout, using the conventional language of significance ($p \leq .05$) and marginal significance ($p \leq .10$). In line with Cohen (1977), the terms *small*, *medium*, and *large* were applied to effect sizes of .2, .5, or .8 (Cohen's *d*) or their mathematically equivalent portion of variance accounted for (.01, .059, or .138, respectively). Because there were no dropouts, there was no imputation of data.

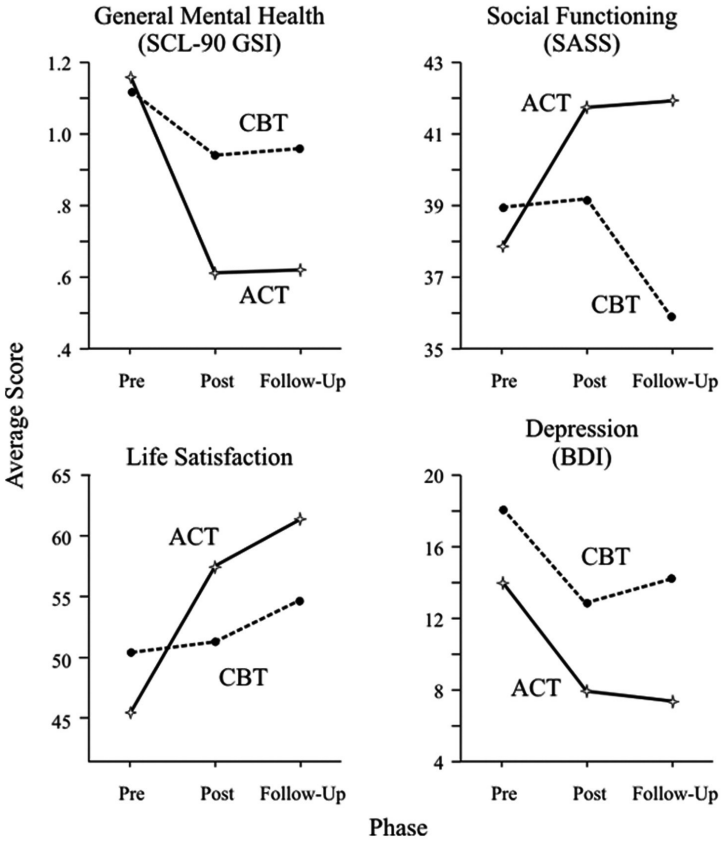
Client Outcomes

Primary outcome. Table 4 presents results for study measures. On the GSI of the SCL-90, the primary outcome measure, effect sizes were large in the ACT group (pre-post: $d = 1.11$: pre-follow-up, $d = 1.04$), and small in the CBT group (pre-post: $d = 0.36$: pre-follow-up, $d = 0.28$). Decreases were statistically significant in the ACT group from pre- to posttreatment as well as from pretreatment to follow-up, and marginally significant at post in the CBT group (see Figure 1).

The SCL-90 showed medium between-group effect sizes (after treatment $d = –0.62$, and at follow-up $d = –0.47$). Nonparametric between-group comparisons showed that changes from the prescore on the SCL-90 were significantly greater in ACT than in CBT at post ($z = 1.68$, $p = .048$), and marginally so at follow-up ($z = 1.63$, $p = .053$). The RMANCOVA also showed a significant and large effect for group, $F(1, 25) = 4.26$, $p = .05$, partial eta sq. = .15; adjusted means—ACT: 83.7, CBT: 56.8, $SE = 9.2$.

The clinical significance of these changes can be estimated by comparing the mean GSI scores for each group with those found for a general community sample. The mean GSI for Finnish community samples (Holi et al., 1998) is .60 ($SD = .44$). The post and follow-up GSI scores for ACT clients (.61 and .62, respectively) were within .02 and .05 standard deviations of the community norm, whereas for CBT clients the post and follow-up scores (.94 and .96, respectively) were within .77 and .82 standard deviations of that value. Thus, both groups showed improvements, but on the primary outcome measure, ACT clients were virtually indistinguishable from community norms following treatment.

Figure 1
Results for Primary and Secondary Outcome Measures on Which at Least Some Group Differences Were Found in Either the Nonparametric or Parametric Analyses or Both



Secondary outcomes. The secondary outcomes measurements showed the same basic picture. There were statistically significant changes from pre- to posttreatment, and from pretreatment to follow-up in the ACT group in depression (pre-post $d = 0.83$: pre-follow-up $d = 0.94$), social functioning (pre-post $d = 0.47$: pre-follow-up $d = 0.48$), mood (pre-post $d = 0.86$:

Table 4
Within-Group Changes During the Treatment in CBT and ACT Groups (*M* and *SD*)

	CBT ($N = 14$)			ACT ($N = 14$)		
	Pre	Post	Follow-Up	Pre	Post	Follow-Up
SCL-90 GSI	1.21 (0.84)	0.94 (0.65) $Z = -1.79$*	0.96 (0.92) $Z = -1.60$	1.16 (0.59)	0.61 (0.38) $Z = -3.17$***	0.62 (0.44) $Z = -2.92$***
BDI	18.4 (13.5)	13.0 (10.3) $Z = -2.23$**	14.3 (15.7) $Z = -1.45$	14.1 (6.8)	8.2 (7.4) $Z = -2.76$***	7.6 (7.0) $Z = -3.18$***
Social functioning	39.0 (7.8)	39.2 (9.4) $Z = -0.39$	35.9 (10.6) $Z = -1.55$	37.9 (8.7)	41.7 (7.5) $Z = -2.10$**	41.9 (8.1) $Z = -2.11$**
Mood	46.6 (23.2)	51.3 (20.6) $Z = -0.69$	55.4 (27.4) $Z = -0.94$	41.6 (16.0)	54.9 (14.8) $Z = -2.48$**	62.1 (18.8) $Z = -2.55$***
Satisfaction	50.6 (23.0)	51.4 (20.7) $Z = -0.04$	54.8 (27.8) $Z = -0.25$	45.6 (15.4)	57.6 (18.4) $Z = -2.42$**	61.3 (17.4) $Z = -2.86$**
Self-confidence	50.6 (21.7)	58.9 (20.7) $Z = -2.45$**	56.2 (28.6) $Z = -1.89$*	48.2 (13.3)	54.3 (21.6) $Z = -1.41$	65.1 (17.8) $Z = -3.24$***
AAQ	30.8 (8.6)	33.2 (11.3) $Z = -1.29$	34.7 (11.0) $Z = -1.89$*	29.9 (8.7)	36.1 (10.6) $Z = -2.71$***	35.1 (10.2) $Z = -2.55$***

Note: Within-group differences between pre- and posttreatment, and pretreatment and follow-up are also presented (Wilcoxon's *Z*-test). BDI = Beck's Depression Inventory; SCL-90 = Symptom checklist, a measure of self-reported symptoms; SASS = Social Adaptation Self-Evaluation Scale; mood = Visual Analogue scale measuring mood; self-confidence = Visual Analogue scale measuring self-confidence; satisfaction = Visual Analogue scale measuring life satisfaction (Vertical Graphic Rating scales 0-100). AAQ = AAQ-8 measuring acceptance.
*$p < .10$. **$p < .05$. ***$p < .01$.

pre-follow-up $d = 1.17$), and life satisfaction (pre-post $d = 0.71$: pre-follow-up $d = 0.96$). The within-group effect sizes for CBT varied from 0.02 to 0.45 (see Table 4). Depression decreased significantly from pre- to posttreatment.

Examined nonparametrically, group comparisons showed that improvements from the prescore on the BDI were marginally greater in ACT than in CBT at follow-up ($z = 1.64$, $p = .053$); for social functioning, these differences were marginally significant at post ($z = 1.54$, $p = .064$) and significant at follow-up ($z = 3.09$, $p = .001$). Between-group effect sizes showed medium size differences in favor of the ACT group for depression (BDI, after treatment $d = –0.53$, and follow-up $d = –0.55$) and social functioning (SASS, after treatment $d = 0.29$, and follow-up $d = 0.63$).

Repeated measures ANCOVAR showed no effects for depression or mood but showed significant and large group differences for social functioning, $F(1, 25) = 8.09$, $p = .009$, partial eta sq. = .25; adjusted means—ACT: 42.2, CBT: 37.1, $SE = 1.3$, and marginally significant and medium sized group differences for life satisfaction, $F(1, 25) = 3.00$, $p < .10$, partial eta sq. = .11; adjusted means—ACT: 61.1, CBT: 51.5, $SE = 3.9$ in the post and follow-up period (see Figure 1).

The clinical significance of changes in life satisfaction and mood scales were estimated by counting the number of clients in each group who selected values 70 or above before and after treatment. The cutoff value was selected because Finnish community sample values vary between 70 and 75 for these scales (Ojanen, 2000; Sjögren et al., 2006). For the CBT group 3 clients had mood values 70 or above during the premeasurement, and 6 during follow-up. The numbers for the ACT group were 1 and 5, respectively. For life satisfaction, 2 clients in CBT group and 1 client in ACT group had values at least 70 at premeasurement. The numbers were 5 in both groups at follow-up. Examined this way, quality-of-life changes were similar in both groups.

Satisfaction. The diary measure of satisfaction during the treatment showed no significant differences between the groups. The measures likewise showed no differences between the groups in willingness to recommend the treatment to others (at follow-up 13 of the 14 CBT clients and all 14 ACT clients would recommended the treatment) and how satisfied they were with the treatments (at follow-up 11 CBT clients and 13 ACT clients were satisfied). Seven participants, out of twenty-eight (25%), reported that they had received other psychological treatment during the follow-up period, but the number was nearly identical between the groups (CBT: 4; ACT: 3). Thus, the outcome differences seen at follow-up did not appear to be because of extraneous treatment.

Processes of change. CBT produced significant pre- to postimprovements in self-confidence at post ($z = 2.45$, $p = .014$) and ACT did not. Conversely, ACT produced significant pre- to postimprovements in acceptance at post ($z = 2.71$, $p = .007$) and CBT did not.

Both these processes covaried with the primary outcome measure, the SCL 90. At post the SCL 90 and acceptance correlated –.76 ($p < .001$), whereas the SCL 90 and self-confidence correlated –.57 ($p < .01$). The same held true when post process measures were correlated with 6-month follow-up scores for the primary outcome measure: The follow-up SCL 90 correlated –.80 ($p < .001$) with acceptance and –.82 ($p < .001$) with self-confidence.

However, partial correlations showed that it was acceptance that was most important to outcome. Using the post process and outcome measures, acceptance (controlling for self-confidence) correlated –.68 ($p = .01$) in the ACT group and –.46 (p = ns) in the CBT group with the SCL-90. Conversely, self-confidence (controlling for acceptance) correlated with the SCL-90 –.02 (p = ns) and +.02 (p = ns) for the CBT and ACT groups, respectively. The same pattern was seen at follow-up: Correlations of the SCL 90 and acceptance (controlling for self-confidence) were significant in both groups, –.61 ($p = .03$) in the ACT group and –.59 ($p = .03$) in the CBT group. The correlations of the SCL 90 and self-confidence (controlling for acceptance) were, respectively, nonsignificant, –.41 (p = ns) and –.32 (p = ns).

Therapist Data

Given the generally better outcomes for the ACT participants, it is important to assess whether these differences could be accounted for on the basis of therapist knowledge, skill, or preferences. These data are shown in Table 5. At the beginning of the treatment, the therapists reported significantly less knowledge in ACT methods compared with CBT methods ($z = –2.13$, $p = .03$). Their self-evaluated skills increased significantly both in CBT ($z = 2.29$, $p = .02$) and in ACT ($z = –3.04$, $p = .001$) during the treatment. However, the therapist's fear and tension during treatment decreased significantly only in CBT ($z = –2.23$, $p = .025$; $z = –2.61$, $p = .007$, respectively), not in ACT. The therapist's overall life satisfaction ($z = –3.05$, $p = .001$) and social functioning ($z = –2.24$, $p = .024$) increased significantly during treatment but not depression, SCL-90, mood, self-confidence, and acceptance (Table 5). After treatment, there were no differences between the CBT and ACT approaches in how confident the therapists felt using them, how much they estimated they had helped the client, and how successful and satisfied they felt using the approaches. There was no difference in either therapist's estimation of the client-therapist relationships.

Table 5
Within-Group Changes During the Treatment in the Therapist Group (*M* and *SD*)

	Pre	Post
BDI	3.0 (3.0)	2.7 (2.4)
SCL-90 GSI	0.40 (0.29)	0.32 (0.24)
Social functioning	45.2 (5.7)	47.7 (4.3)*
Mood	72.4 (15.2)	73.5 (15.6)
Self-confidence	75.6 (8.7)	79.5 (9.7)
Satisfaction	74.4 (9.8)	81.8 (9.3)**
AAQ	45.0 (5.2)	44.9 (5.5)
Fear	3.3 (2.6)	CBT: 1.7 (1.5)* ACT: 2.1 (2.4)
Anxiety	2.9 (2.4)	CBT: 3.0 (2.4) ACT: 3.2 (2.6)
Tension	4.3 (2.8)	CBT: 2.3 (2.3)** ACT: 2.7 (2.4)
Skills: CBT	4.9 (1.9)	6.4 (1.9)*
Skills: ACT	3.9 (2.1)	6.1 (1.5)**

*Significant within-group difference, $p < .05$. **Significant-within group difference, $p < .01$.

Discussion

The present study suggests that beginning therapists exposed to supervision and 6 hours of lectures in ACT processes (values work, committed action, self as a context, defusion, acceptance, and contact with the present moment) and to supervision and 12 hours of lectures on traditional CBT processes (self-monitoring, exposure, problem solving, behavioral activation, social skills training, and progressive relaxation) were able to produce moderately better outcomes on the SCL-90, social functioning, and other measures with ACT than with CBT in a general outpatient population when these methods were linked to individual cases through functional analysis. Furthermore, there was some evidence that these differences fit with process differences predicted by an ACT model.

It is important to be clear about what this means. This is neither an efficacy trial nor is it a comparison of ACT and CBT techniques as such. It says nothing about what a full set of CBT and ACT procedures might produce in well-defined patient populations or in the hands of experienced clinicians. Efficacy comparisons between treatments are normally done

with a handful of highly trained therapists, experts in, and comfortable with, a specific treatment approach, applying manualized versions to specific forms of psychopathology. Usually it is not known whether the results achieved would apply to less well-trained therapists, those not yet experts in a model or comfortable with it, or to cases treated without highly specific manuals for specific disorders.

Effectiveness research is an important supplement to such efficacy trials because they begin to ask if treatments and treatment models differ in the hurly-burly world of real clinical practice and the practical realities of normal (and often limited) clinical training. Generally, highly specific manuals and adherence checks are not used because part of the goal is to see whether training produces positive outcomes when allowed to mimic more usual modes of dissemination than that seen in efficacy trials.

Several training variables are uncontrolled when highly experienced therapists are used (e.g., Strosahl et al., 1998), which is why experts in empirical clinical approaches have pointed to the importance of examining the impact of treatments "when administered by therapists with different degree of training and expertise" (Wilson, 1995, p. 183). Very few studies have done so, especially with beginning therapists. Developers of treatments would normally have little incentive to do so if the focus is on the impact of a specific technology for a specific problem because expert clinicians presumably will do a better job in applying a given technology.

Results are positive for both models in that even extremely limited exposure produced therapists who could create positive therapeutic changes. Clients who were treated within an ACT model by beginning therapists just learning each approach, however, generally showed better outcomes than clients who were treated within a traditional CBT model linked to a limited set of primary procedures. Participants had an initial GSI score of 1.18, which is slightly better than clinical samples on the SCL-90 but still quite elevated. The within-case effect sizes for ACT were large on the primary outcome measure and medium to large on secondary outcomes, effects that can be compared with those obtained by empirically validated treatments in the hands of well-trained clinicians. The effects produced by beginning therapists for cases treated within a traditional CBT model were generally small, although statistically significant in the case of depression. On the primary outcome measure, at both post and follow-up ACT, clients as a group were indistinguishable from general community norms. This pattern of results might suggest a differential ease of dissemination in the two models, but further research is required to know if that is the case.

There were medium to large (depending on the specific analysis) between- condition effect sizes in general mental health outcomes (SCL-90), depression, and social functioning in favor of the ACT approach. These results are broadly in line with the few studies that have so far directly compared ACT and traditional CBT or CT (e.g., Branstetter et al., 2004; Zettle & Hayes, 1986; Zettle & Rains, 1989) and with other ACT effectiveness studies (e.g., Strosahl et al., 1998).

Process changes generally seemed to comport with the ACT model and with the existing literature on ACT processes (Hayes et al., 2006). At post, CBT improved self-confidence to a greater degree than ACT and ACT improved acceptance to a greater extent than CBT. Both correlated positively with outcomes, but partial correlations using both showed that this relation remained for acceptance, controlling for self-confidence but not vice versa.

Although the design controlled for therapist skills, it did equate for knowledge regarding either specific approach or comfort in applying it. These therapists reported being significantly less knowledgeable about ACT before treatment, receiving more limited written materials and less time on ACT during training, and being significantly more nervous about its application throughout treatment. Because results were generally better for ACT, however, the outcomes achieved could not be readily explained by greater knowledge or comfort. This may provide some reassurance to systems of care and to therapists themselves that the discomfort and conceptual confusion experienced while learning ACT, and perhaps other third generation cognitive and behavioral therapies, are not likely to eliminate their effectiveness. That conclusion could be important because ACT appears to be initially counterintuitive to some therapists.

There are many limitations to the present preliminary study, beyond its relatively small size and unusual goals. Only a limited number of traditional CBT methods were used for training. Exposure, social skills training, relaxation training, behavioral activation, problem solving, and self-observation have often been included in CBT approaches that dominate the list of empirically supported treatments (Nathan & Gorman, 2002; Roth & Fonagy, 2005), but certain key interventions with less specific empirical support, such as cognitive restructuring (Dimidjian et al., 2006), were not included. It needs to be remembered that treatments within each model were preceded by a functional analytic clinical case model including a vector-graphic diagram (Haynes & O'Brien, 2000). Specific methods varied widely case to case, as did specific complaints and problems. Several methods were clearly different

between the conditions. For example, with ACT clients the therapists used value-work, metaphors, and observer and mindfulness exercises. But it is also important to note that there was overlap in the treatment techniques. For example, definition or clarification of treatment goals is included in both treatments and homework. Behavioral activation and exposure easily fit within each model, although the purposes of these techniques differ in the two models. Thus it would not be correct to say that two discrete sets of techniques were compared, as one might in an efficacy trial. Rather, these results apply only to the impact of limited training in two general models using junior therapists working with a broad outpatient population.

Even at the level of the two models we do not know whether different results might be obtained if experts were used, or therapy was longer, or different methods of training were used. The present study used a relatively brief period of intervention that might not permit traditional CBT to have its maximum effect. Despite the author's and supervisors' long experience with CBT (longer than with ACT), it is possible that training was less competent in the former than in the latter procedures. Supervisor competence in the underlying models were not formally assessed or controlled. The supervisors had written and published in both models, and did not expect outcome differences, but it is possible that supervisors were somehow biased. This was not revealed in therapist ratings, but these ratings may not have been adequate to control for subtle cues. These kinds of issues can only be addressed through replication of this preliminary study with other research teams.

Another limitation (and a strength) is that of any broad effectiveness study: These clients varied a great deal. A related limitation is that the present study focused on specific complaints of a general outpatient population, and although there was a formal functional analysis, there was no formal diagnosis because the functional analytic model employed was problem-focused, not diagnosis-focused. For both these reasons, these data do not necessarily apply to any specific diagnostic group.

However, efficacy and effectiveness studies ask and answer different questions. The present study suggests that across a range of typical outpatient problems, treatment organized in terms of an ACT model produced better outcomes in beginning therapists with very limited training in both models. Ideally, these data will be supplemented by efficacy studies that compare specific techniques and protocols within refined patient populations (e.g., diagnostic groups). Some data of that kind exist (e.g., Branstetter et al., 2004; Zettle & Hayes, 1986; Zettle & Rains, 1989), and so far the results are similar but a great deal more remains to be done.

Despite the long track record of CBT, there are few studies on the training needed to be effective, and quite apart from the comparisons between models, this study points to the need for more research in that area. We need to know how long and what kind of therapist training is needed to get significant psychological effects within ACT and traditional CBT models. It would be relatively easy to generate such data in university clinics and psychotherapy training centers were the present approach applied to the evaluation of their training approaches.

This preliminary study underlines the importance of characterizing and comparing "third generation" behavioral and cognitive approaches to more traditional CBT and CT models. In the field, it needs to be known if these new developments produce better outcomes and/or work through different processes than traditional CBT or CT. So far, they appear to be different at the level of process and perhaps even at outcome levels. Either finding could be very important if it turns out to be reliable. All these new third generation methods, including ACT (Hayes et al., 1999, p. 79), are part of CBT writ large, and thus comparisons of processes and outcomes can only support further development of the behavioral and cognitive therapies, regardless of how these comparisons ultimately turn out.

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