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Acceptance and Commitment Therapy for Depression: A Preliminary Randomized Clinical Trial for Unemployed on Long-Term Sick Leave

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This preliminary study investigated the feasibility of a brief Acceptance and Commitment Therapy (ACT) in a Swedish sample of unemployed individuals on long-term sick leave due to depression. Participants were randomized to a nonstandardized control condition (N=16) or to the ACT condition (N=18) consisting of 1 individual and 5 group sessions. From pretreatment to 18-month follow-up the ACT participants improved significantly on measures of depression, general health, and quality of life compared to participants in the control condition. The conditions did not differ regarding sick leave and employment status at any time point. The results indicate that ACT is a promising treatment for depression. The need for further refinements of future ACT protocols for this population is discussed.

Depression is one of the most common reasons for long-term sick leave (≥ 60 days) in Sweden (Försäkringskassan, 2010). Most individuals on physician-certified sick leave in Sweden are granted financial support from the Social Insurance Office. A substantial proportion (6% to 17%) of those on long-term sick leave are unemployed (Försäkringskassan). Individuals on long-term sick leave from unemployment due to psychiatric illness are particularly unlikely to return to work (Riksförsäkringsverket, 2002). Unemployment is associated with increased levels and persistence of depressive symptoms (Paul & Moser, 2009), worse treatment outcomes in depression (Sherbourne, Schoenbaum, Wells, & Croghan, 2004), and increased risk of suicide (Johansson & Sundquist, 1997; Kposowa, 2001). Sick absenteeism predicts future depression (Melchior et al., 2009) and is associated with an increased risk of suicide (Vahtera, Pentti, & Kivimäki, 2004). There are effective treatments and interventions available for depression (Cuijpers, van Straten, van Oppen, & Andersson, 2008), unemployment and sickness absenteeism (see Wesson & Gould, 2010, for a review), when dealing with each problem considered separately. To date, however, no studies have

targeted the effect of psychological treatment for the combination of sick leave from unemployment due to clinical depression.

Acceptance and Commitment Therapy (ACT) has shown promising results for individuals on short-term sick leave (< 20 consecutive days) among Swedish health service employees (Dahl, Wilson, & Nilsson, 2004). This preliminary randomized trial found a decrease in sick leave due to pain and stress problems in the ACT group after four sessions compared to treatment as usual. ACT, in individual and group format, has been compared with cognitive therapy for depression and was found equally effective (Zettle & Hayes, 1986; Zettle & Rains, 1989). These trials had small samples and the treatment, an older version of ACT called Comprehensive Distancing, was delivered in 12 weekly sessions. Forman, Herbert, Moitra, Yeomans, and Geller (2007) used a contemporary version of ACT and included both anxious and depressed individuals ($N=101$). They found that ACT and cognitive therapy produced equal outcomes. A randomized trial for patients with substance abuse and depression showed that an addition of ACT to treatment as usual resulted in shortened inpatient treatment duration (Petersen & Zettle, 2009). Thus, ACT may be an effective intervention for sick leave reduction and for depression.

ACT may be applied to a variety of psychological issues and is not bound by diagnoses but the processes involved in the clinical issue. However, different problems or disorders may warrant adaptations in the use of certain interventions and/or emphasis on certain processes. In ACT, depression

¹ Video patients/clients are portrayed by actors.

Keywords: Acceptance and Commitment Therapy (ACT); depression; long-term sick leave; unemployment; RCT

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is conceptualized as a secondary emotion that arises from struggling to avoid normal and adaptive emotional reactions to distressing life events, for example, loss (Zettle, 2007). Job loss is relevant to those on sick leave or unemployed as job loss increases depression (Price, 1992). The ACT approach to thoughts in general and negative thoughts in depression does not emphasize the content, form, or frequency of thoughts as problematic. Instead, how one relates to them (i.e., the function of thoughts) is highlighted. The tendency to behave in accordance with the content of thoughts is called “cognitive fusion”; it is via “defusion” and other processes that clients learn to hold thoughts more lightly and choose action based on values instead of the content of thoughts. Defusion was found to mediate outcomes in Zettle and Hayes’ (1986) and Zettle and Rains’ (1989) trials for depression (Hayes, Luoma, Bond, Masuda, & Lillis, 2006; Zettle, Rains, & Hayes, 2011). An example of fusion, relevant to depression, is high investment in finding the cause of one’s depression (e.g., past events, emotions, and thoughts) and repeated attempts to eliminate or “fix” the cause, even though it is often impossible or unhelpful (e.g., in the case of past events). The focus on the cause, referred to as “reason giving,” of one’s depression may increase rumination (Addis & Carpenter, 1999) and depression (Hayes et al., 2004). Those who can offer more reasons for being depressed respond less favorably to treatment (Addis & Jacobson, 1996). In ACT there is also a focus on engaging the individuals in committed action coherent with their values in multiple life areas (Twohig, 2012–this issue). Individuals with depression have low engagement in pleasurable activities (Lewinsohn & Graf, 1973; MacPhillamy & Lewinsohn, 1974) and Plumb, Hayes, Hildebrandt and Martin (2007) found a negative association between level of valued action and depression. Thus, the data on the processes involved in ACT further support the investigation of ACT for the targeted population.

The aim of the current study was to investigate the feasibility of a brief trial of ACT, (mainly in group format), for unemployed individuals on long-term sick leave due to depression. Follow-up was conducted 18 months after treatment to investigate the sustainability of ACT for depression. It was hypothesized that participants in the ACT condition would improve significantly on self-rating measures of depression, general health, stress, and quality of life compared to a nonstandardized control group at posttreatment and follow-up. Another aim was to investigate if ACT would prevent transition into disability pension, prevent prolonged sick leave, or lead to increased employment rates compared with controls.

Method

Participants

Participants were recruited from a Regional Social Insurance Office in a midsized Swedish city. This is a

national authority responsible for management of the social insurance (e.g., financial compensation) for Swedish citizens unable to earn their income due to disability or illness (i.e., individuals on sick leave or disability pension). The social insurance benefits depend on a certificate from a physician stating the diagnosis and the degree of incapacity (25%, 50%, 75%, or 100%). The duration of the sick listing period depends on the pervasiveness of the incapacity. If incapacity is permanent or long lasting, individuals may be granted disability pension (referred to as *sickness compensation* by the Social Insurance Office). When incapacity is temporary the financial compensation is called *sickness benefit* (this is referred to as being “on sick leave” in this study). Unemployed individuals on sick leave or disability pension are not required to apply for work or take part in other mandatory activities for the unemployed.

Inclusion criteria were as follows: (a) a diagnosis of unipolar depressive disorder as defined by the *Diagnostic and Statistical Manual of Mental Disorders*, 4th edition (American Psychiatric Association, 1994); (b) unemployment; (c) temporary sick leave (100% incapacity) due to depression; and (d) an age between 18 and 65 years. The exclusion criteria were as follows: (a) ongoing psychotic illness; (b) alcohol or substance abuse disorder; and (c) explicit suicidal plans. Through register search, the Regional Social Insurance Office identified 100 potential participants out of which 35 accepted the invitation (see Figure 1).

All participants were Caucasian and the majority were females (88.2%). The mean age was 43 years (see Table 1). Participants had been on consecutive sick leave for a mean of 351 days ($SD=152.44$) and all participants (except one in the control condition) were on long-term sick leave (i.e., ≥ 60 days). Participants had, on average, one additional somatic or psychiatric diagnosis. Almost 80% of the participants used antidepressant medication and over 80% were single, divorced, or widowed.

Procedure and Design

Approval for the present study was obtained from the Regional Ethics Committee. Potential participants were identified through the Regional Social Insurance Office database. All diagnoses were established by each participant’s M.D. (in most cases a psychiatrist) and were noted on their sick leave certificate. Participants were identified subsequent to prescribed sick leave. Thus, there was no control of diagnostic procedures. All eligible individuals were invited via a letter consisting of forms for informed consent and self-report measures. Participants who returned the forms and measures were randomized to ACT or the control condition. The first individual ACT session (60 to 90 minutes) was followed by five group sessions (120 to 180 minutes). ACT was delivered in the

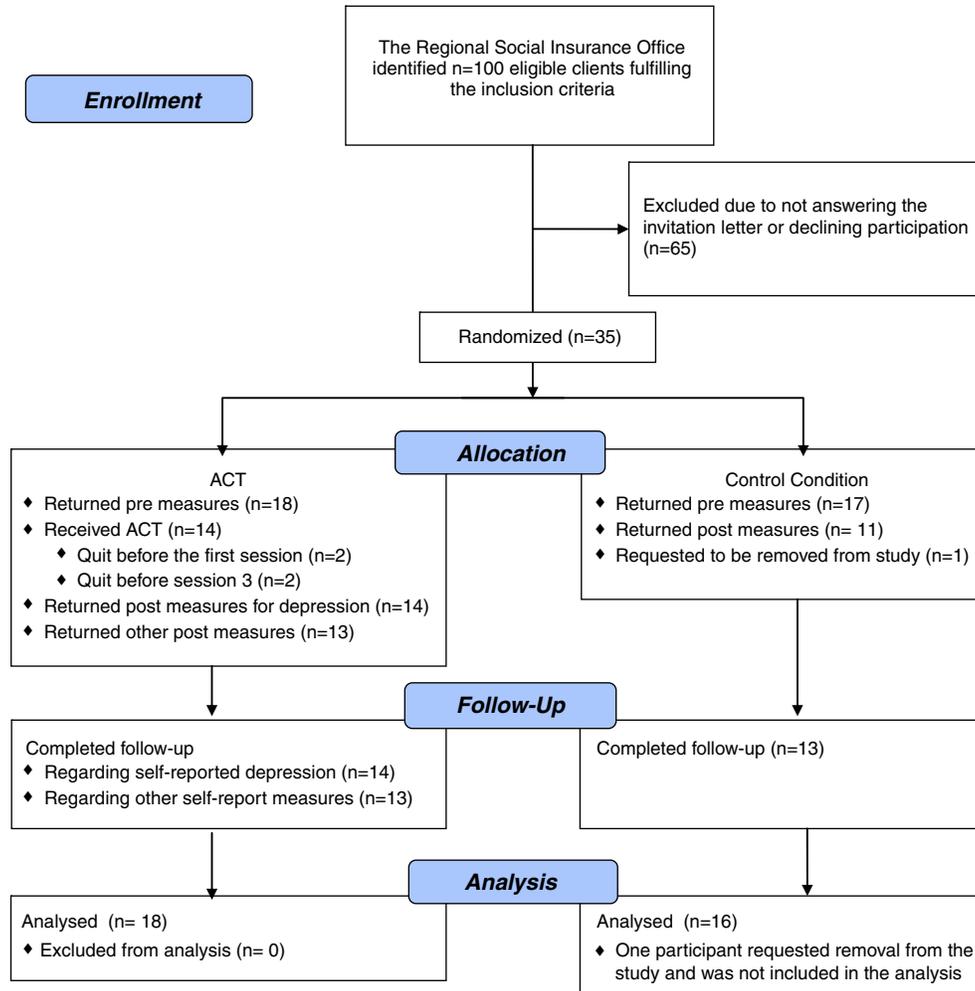


Figure 1. Flow chart of participant enrollment, allocation, follow-up, and analysis (ACT=Acceptance and Commitment Therapy).

Table 1
Demographic Description of Participants in the ACT And Control Condition at Pretreatment

	ACT N=18 M (SD)	Control Condition N=16 M (SD)	Total N=34 M (SD)
Age	40.56 (10.14)	46.25 (7.88)	43.24 (9.46)
Days on consecutive sick leave prior to treatment	353.94 (176.44)	347.56 (126.59)	350.94 (152.44)
Number of diagnoses with psychiatric comorbidity	2 (0.84) n=7	1.94 (0.85) n=9	1.97 (0.83) n=16
Number of diagnoses with somatic comorbidity	n=8	n=4	n=12
Gender	N (%)	N (%)	N (%)
Male	1 (5.6%)	3 (18.8%)	4 (11.8%)
Female	17 (94.4%)	13 (81.3%)	30 (88.2%)
Marital status	3 (16.7%)	3 (18.8%)	6 (17.6%)
Married/cohabiting	15 (83.3%)	13 (81.3%)	28 (82.4%)
Single/divorced/widowed			
On antidepressant medication	14 (77.8%)	13 (81.3%)	27 (79.4%)

Note. ACT=Acceptance and Commitment Therapy

office of the Regional Public Employment Service, another authority involved in supporting the current population. Participants who returned the follow-up measures were rewarded with a movie voucher. Participation was free of charge.

Outcome Measures

Primary Outcome Measures

The Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) assesses the level of depression.² The BDI consists of 21 items with four statements to choose among (the summed score ranges from 0 to 63). Diagnostic intervals are proposed as follows: a score between 0–9 points indicates minimal depression, 10–16 points mild depression, 17–29 points moderate depression, and 30–63 points severe depression (Beck & Steer, 1993). A review by Beck, Steer, and Garbin (1988) reported a mean coefficient alpha of .87 and test-retest reliability greater than .60. Among Swedish unemployed women with depression, a Cronbach alpha coefficient of .89 was reported (Hall & Johnson, 1988). In a review, Beck et al. (1988) concluded that the BDI demonstrated strong concurrent and construct validity.

The 12-item version of the General Health Questionnaire (GHQ-12; Goldberg & Williams, 1988) assesses the degree of psychological distress. The GHQ-12 has been recommended for, and extensively used in, occupational studies (e.g., Bond & Bunce, 2000). Items are rated on a 4-point Likert scale (the summed score ranges from 0 to 36) where higher scores indicate more psychological distress. Goldberg et al. (1997) suggested a clinical cutoff score (a threshold for “caseness”) of 11 for the Likert-style scoring of the GHQ-12. Goldberg and Williams reported a mean internal consistency of .85 and Creed, Muller, and Machin (2001) reported an alpha coefficient of .89 among unemployed. The GHQ-12 has shown satisfactory test-retest reliability (Piccinelli, Bisoffi, Bon, Cunico, & Tansella, 1993) and good validity in different countries (Goldberg et al., 1997).

Secondary Outcome Measures

The 14-item Perceived Stress Scale (PSS; Cohen, Kamarck, & Mermelstein, 1983) assesses the degree of appraised stress in certain situations. Each item is rated on a 5-point Likert scale (the summed score ranges from 0 to 56). The alpha coefficient varied between .84 and .86 in three different samples (Cohen et al., 1983). The PSS has shown adequate internal and test-retest reliability and correlation with depression but has been found to measure an independent construct predictive of health (Cohen et al.).

² The second version of the BDI (BDI-II; Beck, Steer, & Brown, 1996) was not available in Swedish when the study was conducted.

The 26-item short version of the World Health Organization Quality of Life assessment (WHOQOL-BREF; World Health Organization, 1996) assesses quality of life among four domains: physical, psychological, social relationships, and environment. This study reported the summed total score (range: 0–130) where higher scores indicate higher quality of life. Cronbach's alpha between .86 and .91 was reported for the total score in a large study on depression (Amir et al., 2000). The scale has demonstrated good construct and content validity and reliability among psychiatric outpatients (Trompenaars, Masthoff, Van Heck, Hodiament, & De Vries, 2005)

Employment and sick leave data were obtained from the Regional Social Insurance Office records at the 18-month follow-up. At pre- and posttreatment all participants were unemployed and on sick leave. A positive outcome status at follow-up was defined as being declared fit (i.e., not on sick leave anymore, either as employed or unemployed) while negative outcome was defined as being on sick leave (from unemployment or employment) or on disability pension. Participants were categorized as employed if they were working ≥ 20 hours per week and categorized as being on sick leave or disability pension if they received social insurance benefits for more hours than they worked (i.e., >20 hours per week for employed participants and ≥ 10 hours per week for unemployed).

Therapists

Two master students in psychology who had passed their clinical training in cognitive behavior therapy provided the ACT treatment. The student therapists were trained via experiential and theoretical workshops (for 5 days over the course of 3 months) and received biweekly supervision by an experienced ACT therapist (JoAnne Dahl). Fidelity to the treatment model was not assessed. The initial individual sessions were divided equally between the two therapists and they took turns as main and cotherapist during group sessions.

Treatments

Control Condition

Like all Swedish citizens, participants had access to public health care and assistance from the Public Employment Service, as well as the Regional Social Insurance Office, if desired. During the treatment period all participants had at least some contact with their physician. The control condition was not a uniform treatment condition, as some individuals actively sought out different treatment alternatives while others only renewed their certificate for sick leave.

ACT

Participants in the ACT condition also had access to the same care as the participants in the control condition.

The ACT protocol was drawn from Hayes, Strosahl, and Wilson (1999). Exercises and metaphors were modified to reflect issues specific to depression, unemployment, and sick leave. The general content of each session and the purpose of each intervention is presented in Table 2. Two video clips are included in this article to demonstrate the implementation of certain therapy techniques.

Session 1. This individual session facilitated an ideographic ACT case formulation. Initially, participants were asked what had brought them to therapy. Considering the time limits of the current protocol, the immediate focus was on clarification, in behavioral terms, of what the client valued in different life domains (e.g., intimate relationships, family, work, etc.), and at the same time, identification of the barriers of acting in accordance with these values. Barriers in the form of “stories” or “reasons” (i.e., verbal reasons for not acting in a valued direction) were evoked, as were other private events (thoughts, feelings, bodily sensations, memories). The solutions clients had pursued in response to the stories were analyzed both in terms of how successfully they had reduced psychological suffering and in terms of whether they had facilitated valued action. The dialogue below illustrates how the therapist assesses the utility of such solutions with a client.³

THERAPIST: You really care about being there for your kids and one example you mentioned is that you want to support them at ice hockey practice.

CLIENT: Yes, but since I got depressed it's impossible. I can't face the other parents. I tried a year ago and it ended in disaster—I couldn't get out of bed for a week afterwards. I just felt so stupid for not talking to them and not signing up for driving the team to games. I think it was wrong of them to ask me to sign up, I mean, they knew I hadn't been myself for a year, I won't go back there.

THERAPIST: You were really hurt there—and you miss being with your kids at practice. I can tell you care deeply about this. How have you dealt with the emotional pain?

CLIENT: Mostly I try to forget. I've told myself not to go back until I feel stronger, but most of the time I just tell myself that the other parents at hockey were inconsiderate.

THERAPIST: How has that worked? I mean trying to forget, waiting to feel stronger and thinking about the hockey parents' attitude towards you. Has it worked in terms of supporting your kids?

CLIENT: I certainly haven't forgotten. Occasionally I feel stronger but it is only for a short while—on the whole I am worse off now than I was a year ago.

³ Details about the case have been modified to protect the identity of the client.

The participants all struggled believing that a valued life is attained only when the barriers (unwanted thoughts, feelings, bodily sensations, memories, etc.) are eliminated. Thus, the internal experience needs to be “fixed” before it is possible to start moving in a valued direction (this was referred to as the “control agenda”). The first session ended with the participants choosing one of two paths—continued struggling with the pursued solutions or taking steps in valued direction. The assignment for the coming week was to make notes of how they chose between the two alternatives.

Session 2. This was the first group session. The goal of the first part of this session was to review the first individual session, now in a group format. The purpose was to allow clients to share their experiences and to demonstrate similarities in the group members' values and psychological suffering. Video 1 illustrates a therapist who reviews group members' values and barriers. Video 2 illustrates a therapist who assesses the utility of attempting to control private experiences. The review of barriers and values was then expanded through the use of exercises and metaphors from Hayes et al. (1999)—for example, “the person in the hole” metaphor (p. 101), “chocolate cake” exercise (p. 124), and “the polygraph” metaphor (p. 123). Later in Session 2, willingness was introduced as an alternative to the control agenda by means of metaphors such as “clean versus dirty discomfort” (Hayes et al., p. 136) and “the two scales” (Hayes et al., p. 133). The purpose was to make room for private events and enable participants to take a step back and look at the ebb and flow of private events. Clients were handed a “daily willingness diary” (Hayes et al., p. 144) for the coming week to register situations that elicited discomfort and then rate their level of willingness.

Session 3. Starting with a review of the willingness diary homework, clients were then guided through the “observer” exercise (Hayes et al., 1999, p. 193) to add the experience of being not merely their body, social roles, emotions and thoughts, but the one observing these events that come and go as time passes. This session then turned to exercises facilitating cognitive defusion with the purpose of adding new functions to thoughts. The consequences of acting on the absolute meaning of what the mind produces were investigated in relation to values. Practice included fusion with common language, such as the use of the word “but,” and defusion of typically unwanted thoughts (e.g., “I'm useless”) and reason giving (e.g., “I can't work because I've been on sick leave for so long”). Clients were instructed to complete short mindfulness exercises during the coming week and register their experiences.

Session 4. After homework review, role-play was used to practice skills learned so far in therapy. The role-plays focused both on important (in terms of values) and highly

Table 2
Session-by-Session Overview of the ACT Treatment: Components and Strategies, Purposes and Goals

Components and strategies	Purpose and goal
<p><i>Session 1, individual</i></p> <ul style="list-style-type: none"> • Values clarification • Ideographic ACT assessment • Validation of suffering • Choosing; control or values 	<ul style="list-style-type: none"> • Increase motivation for acceptance and change • Assess previous control strategies • Develop alliance • Notice discrepancy between values vs. control
<p><i>Session 2, group</i></p> <ul style="list-style-type: none"> • Agreeing on group rules • Control is the problem • Acceptance and willingness 	<ul style="list-style-type: none"> • Familiarize with treatment format • Review of Session 1 in the group format • Introduce an alternative to control experientially
<p><i>Session 3, group</i></p> <ul style="list-style-type: none"> • Observer perspective • Defusion • Acceptance and mindfulness 	<ul style="list-style-type: none"> • Observe private events instead of “being” them • Experience how the mind and language function • Practice acceptance using mindfulness
<p><i>Session 4, group</i></p> <ul style="list-style-type: none"> • Role playing • Defusion • Commitments 	<ul style="list-style-type: none"> • Practice ACT skills • Observe private events nonliterally • Plan values-guided actions
<p><i>Session 5, group</i></p> <ul style="list-style-type: none"> • Defusion • Forgiveness • Commitments 	<ul style="list-style-type: none"> • Observe verbal evaluations without acting on them • Forgiving as an alternative to “being right” • Plan values-guided actions
<p><i>Session 6, group</i></p> <ul style="list-style-type: none"> • Summing up treatment • Feelings about termination • Relapse prevention 	<ul style="list-style-type: none"> • Clients and therapists share therapy summaries • Status check-up and apply new skills • Plan relapse and generalization strategies

Note. ACT=Acceptance and Commitment Therapy

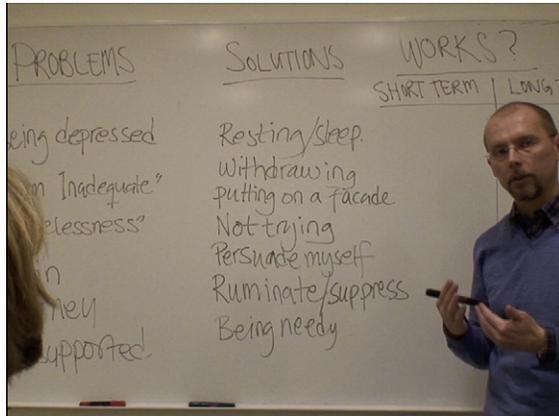
distressing situations drawn from the clients’ lives. The “taking your mind for a walk” exercise (Hayes et al., 1999, p. 163) and “the passengers on the bus” metaphor (Hayes et al., p. 157) were added to enhance the role-plays by using group members to verbalize and act out difficult thoughts and feelings experienced by a client. The purpose was to increase behavioral flexibility in the presence of distressing private events and to practice defusion to enable action in valued directions. Finally, the participants expressed commitments to act in valued directions during the week.

Session 5. This session began with a review of the commitment homework. Then the distinction between “evaluations” (matters of opinion) and “descriptions” (facts about the nature of things) was discussed, particularly the tendency to respond to evaluations (e.g., “I’m bad”) as if they are proper descriptions of our nature. This often leads to actions in accordance with the control agenda. Thus, participants practiced identification of evaluations, holding them lightly, and asking themselves if it is possible to act in accordance with values in the

presence of negative self-evaluations. The delicate matter of “forgiveness” (Hayes et al., 1999, p. 257) was introduced in the context of defusion and acceptance. The purpose was to highlight how past experiences of being mistreated were related to present anger and



Video 1. The therapist reviewing group members’ values and barriers.



Video 2. Assessing the utility of attempting to control private experiences.

resentment and to investigate to what extent these private events presented as barriers to acting in valued directions. Forgiveness was framed as something you practice (i.e., not a feeling or a thought) to be able to move on in valued directions (i.e., the function of forgiveness for the client was stressed, not for the person who was forgiven) and as something that can be achieved independently of whether the “guilty one” deserves it or even gets to hear it. The session ended with commitments for the coming week.

Session 6. After a review of the commitment homework, clients provided a summary of what had been most important to them in the treatment. Therapists encouraged clients to verbalize any feelings and thoughts regarding terminating therapy. As some expressed concerns about leaving therapy, these thoughts and feelings were elaborated on by reminding the clients of metaphors and exercises from the treatment. Clients were also encouraged to further clarify how they were to continue moving in their valued direction and work with the skills and strategies learned in therapy.

Statistical Analysis

Pretreatment group differences were examined with χ^2 test, *t*-test, and Mann–Whitney U test. Mixed Model Repeated Measures (MMRM) was used to investigate effects using an intent-to-treat sample (Raudenbush & Bryk, 2001) with two between (control condition and ACT) and three within (pretreatment, posttreatment, and follow-up) levels. This model is particularly powerful when conducting intent-to-treat analysis as all available data are used. The MMRM approach reduces the analytic problem presented by missing data as it takes into account the obtained outcome and missingness for participants with missing data. For example, estimates of ultimate treatment impact will be reduced for conditions with dropouts among participants doing poorly before producing

missing data. The MMRM analyses were initially conducted using an unstructured covariance model, followed by the identical analysis using compound symmetry, Toeplitz and compound symmetry heterogeneous covariance assumptions. These covariance pattern models allow for missing data across time points and for different kinds of variance-covariance structures for repeated measures (Hedeker & Gibbons, 2006). The model with the fewest parameters was reported provided there was no significant difference in the fit as determined by comparison of nested models through the restricted log-likelihood. Denominator degrees of freedom for the fixed effects test statistics were based on the Satterthwaite approximation. Effect sizes (Cohen's *d*) for *F* values were based on the method suggested for repeated measures and multilevel designs (Rosenthal & Rosnow, 1991; Verbeke & Molenberghs, 2000) and effect sizes for planned contrasts used to disassemble interactions as specified by Wackerly, Mendenhall, and Scheaffer (2008, p. 271). Effect sizes were discussed using the cutoffs suggested by Cohen (1988).

In a meta-analysis on group therapy for depression comparing different types of psychotherapy vs. untreated controls, McDermut, Miller, and Brown (2001) found an average effect size of $d=1.03$ at posttreatment and $d=1.18$ at follow-up (up to a year). From this finding it was estimated that with a hypothesis favoring ACT, an effect size of $d=1.1$, and a power of at least .85, the study would need 32 participants to detect significant differences between the groups.

Results

There were no significant differences between groups regarding age, $t(32)=1.81$, $p=.079$; gender ($\chi^2=1.42$, $p=.26$); marital status ($\chi^2=0.025$, $p=.61$); days on sick leave prior to treatment, $t(32)=-0.12$, $p=.90$; use of antidepressant medication ($\chi^2=0.06$, $p=.57$); or number of diagnoses ($n=34$, $U=151$, $p=.79$; see Table 1). There were no significant differences between groups on the BDI, PSS, GHQ or WHOQOL-BREF at pretreatment ($0.001 < t < 0.88$, $.36 < p < .98$; see Table 3).

At posttreatment assessment, 4 in the ACT group and 5 in the control condition (plus 1 additional participant who requested being removed from the study) did not return the self-report measures (please see Figure 1 for follow-up assessments). Fourteen participants attended the majority of sessions (≥ 4) in the ACT condition. Two participants dropped out prior to the first session and an additional 2 terminated therapy after the first two sessions.

Primary Outcomes

Depression

All participants' data were analysed using a MMRM analysis. The Toeplitz covariance structure was found to best fit the data and revealed no significant effect for time,

Table 3
Means and Standard Deviations for Self-Report Measures at Each Assessment Point for ACT and Control Condition Participants

Assessment	ACT	Control Condition
	<i>M (SD)</i>	<i>M (SD)</i>
<i>Beck Depression Inventory</i>		
Pretreatment	21.11 (10.94)	22.38 (11.41)
Posttreatment	15.43 (9.61)	22.45 (11.13)
18-month follow-up	15.21 (9.28)	20.46 (12.61)
<i>General Health Questionnaire (12 item version)</i>		
Pretreatment	21.5 (8.4)	21.44 (6.45)
Posttreatment	17.54 (8.71)	22.45 (7.63)
18-month follow-up	18.0 (7.41)	19.27 (9.96)
<i>Perceived Stress Scale</i>		
Pretreatment	33.28 (10.01)	36.38 (9.17)
Posttreatment	31.23 (13.42)	36.45 (8.5)
18-month follow-up	28.42 (10.23)	33.0 (12.46)
<i>World Health Organization's Quality of Life (Brief Version)</i>		
Pretreatment	44.22 (6.56)	45.87 (7.59)
Posttreatment	48.69 (9.54)	44.18 (7.83)
18-month follow-up	47.83 (9.37)	47.46 (11.33)

Note. ACT=Acceptance and Commitment Therapy

$F(2, 30.17)=1.86, p=.17$, or condition, $F(1, 34.53)=1.95, p=.17$, but found a large and significant interaction between time and condition, $F(2, 30.17)=5.57, p=.009$, effect size=0.86. The interaction occurred because while there was no difference between the conditions at pretreatment ($p=.74$), ACT participants showed a medium and significant improvement from pretreatment to posttreatment [estimate of mean improvement= $-4.78, SE=1.81, t(48.09)=-2.64, p=.011$, effect size=0.71] and showed a trend toward a medium improvement from pretreatment to follow-up [estimate of mean improvement= $5.27, SE=2.73, t(29.72)=-1.93, p=.063$, effect size=0.77]. In contrast, the participants in the control condition deteriorated nonsignificantly from pretreatment to posttreatment [estimate of mean deterioration= $2.75, SE=1.95, t(48.54)=1.41, p=.165$], and improved nonsignificantly from pretreatment to follow-up [estimate of mean improvement= $-1.62, SE=2.84, t(29.32)=-.57, p=.57$].

Using the proposed diagnostic intervals for the BDI (Beck & Steer, 1993), 3 participants (8.8%) were found not depressed (≤ 9 on the BDI), 12 (35.3%) were mildly depressed (scores between 10–18), 11 (32.4%) were moderately depressed (scores between 19–29), and 8 (23.5%) were severely depressed (scores between 30–63) at pretreatment. A subanalysis was conducted on those with at least moderate depression ($n=19; 55.9%$) in order to

investigate those with more clinical needs. The adjusted means for these participants are shown in Figure 2. An MMRM analysis with a Toeplitz covariance structure best fit the data and revealed a significant effect for time, $F(2, 14.54)=4.95, p=.023$, a trend effect for condition, $F(1, 18.20)=3.78, p=.067$, and a large and significant interaction between time and condition, $F(2, 14.54)=3.92, p=.044$, effect size=1.04. The interaction occurred because while there was no difference between the conditions at pretreatment ($p=.54$), ACT participants showed a large and significant improvement from pretreatment to posttreatment [estimate of mean improvement= $-7.08, SE=2.25, t(24.09)=-3.15, p=.004$, effect size=1.01] and pretreatment to follow-up [estimate of mean improvement= $-11.18, SE=3.35, t(12.98)=-3.33, p=.005$, effect size=1.74]. In contrast, the participants in the control condition deteriorated nonsignificantly from pretreatment to posttreatment [estimate of mean deterioration= $2.05, SE=2.50, t(24.28)=.82, p=.42$] and improved nonsignificantly from pretreatment to follow-up [estimate of mean improvement= $-3.52, SE=3.65, t(12.15)=-.97, p=.35$].

Seggar, Lambert, and Hansen (2002) have suggested that clinically significant change on the BDI be defined as a movement of at least 8.46 points and an end-point score below 14.29. Counting all missing data as unimproved, and focusing on those who were at least moderately depressed at pretreatment, 3 of 11 ACT participants were clinically improved at posttreatment and 4 of 11 at follow-up. No participants in the control condition were clinically improved at posttreatment while 1 of 8 was at follow-up.

General Mental Health

All 34 participants scored above the clinical cutoff score (i.e., 11) suggested for the Likert-style scoring of the

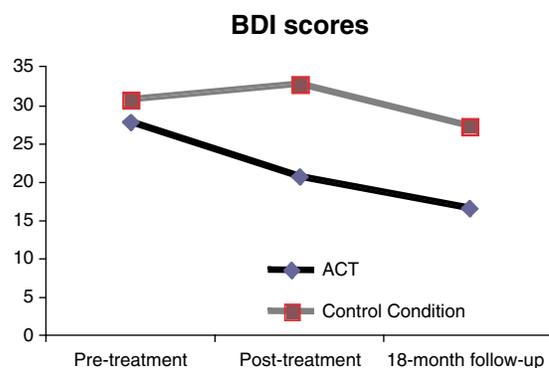


Figure 2. Adjusted mean BDI scores for the subgroup of at least moderately depressed participants in the ACT and control condition group at pretreatment, posttreatment, and at 18-month follow up. BDI=Beck Depression Inventory; ACT=Acceptance and Commitment Therapy.

GHQ (Goldberg et al., 1997), indicating that this was a relatively distressed population. In the overall analysis, an MMRM analysis with a compound symmetry covariance structure best fit the data and revealed a trend for time, $F(2, 48.23) = 3.09, p = .055$, no significant effect for condition, $F(1, 33.18) = 1.08, p = .31$, but a medium and significant interaction effect between time and condition, $F(2, 48.23) = 3.20, p = .049$, effect size = 0.52. The interaction occurred because while there was no difference between the conditions at pretreatment ($p = .98$), ACT participants showed a medium and significant improvement from pretreatment to posttreatment [estimate of mean improvement = -3.86, $SE = 1.65, t(48.96) = -2.63, p = .024$, effect size = 0.63] and pretreatment to follow-up [estimate of mean improvement = -3.92, $SE = 1.71, t(49.13) = -2.30, p = .026$, effect size = 0.64]. In contrast, the control condition deteriorated nonsignificantly from pretreatment to posttreatment [estimate of mean deterioration = 2.25, $SE = 1.78, t(48.77) = 1.26, p = .21$], and improved nonsignificantly from pretreatment to follow-up [estimate of mean improvement = -1.92, $SE = 1.67, t(48.38) = -1.14, p = .26$].

Secondary Outcomes

Perceived Stress

An MMRM analysis with a compound symmetry covariance structure best fit the data and revealed a significant effect for time, $F(2, 47.75) = 4.62, p = .015$, but no effect for condition, $F(1, 32.62) = 1.62, p = .21$, or the interaction between time and condition, $F(2, 47.75) = 0.39, p = .68$. The time effect occurred because while there was no improvement from pretreatment to posttreatment in either condition, ACT participants showed a medium and significant improvement from pretreatment to follow-up [estimate of mean improvement = -4.83, $SE = 2.30, t(48.67) = -2.10, p = .041$, effect size = 0.59] and the control condition participants showed a trend toward similar improvement [estimate of mean improvement = -4.03, $SE = 2.26, t(47.90) = -1.78, p = .081$, effect size = 0.49].

Quality of Life

In the overall analysis, an MMRM analysis with a Toeplitz covariance structure best fit the data and revealed no effect for time, $F(2, 33.58) = 2.07, p = .14$, or condition, $F(1, 32.66) = 0.23, p = .63$, but a medium and significant interaction between time and condition, $F(2, 33.58) = 4.25, p = .023$, effect size = 0.71. The interaction occurred because while there was no difference between the arms at pretreatment ($p = .59$), ACT participants showed a medium and significant improvement from pretreatment to posttreatment [estimate of mean improvement = 4.74, $SE = 1.73, t(44.03) = 2.74, p = .009$, effect size = 0.74] and a trend from pretreatment to follow-up [estimate of mean improvement = 4.18, $SE = 2.20, t(31.43) = 1.90, p = .066$, effect size = 0.65]. In contrast, the control condition

participants worsened nonsignificantly from pretreatment to posttreatment [estimate of mean deterioration = -2.13, $SE = 1.86, t(42.19) = -1.14, p = .26$] and improved nonsignificantly from pretreatment to follow-up [estimate of mean improvement = 2.13, $SE = 2.20, t(27.93) = 0.97, p = .34$].

Employment and Sick Leave Status Outcomes

Outcome data regarding employment and sick leave status at pretreatment and at 18-month follow-up was available for all 34 participants (please see Table 4). At pre- and posttreatment, all participants were unemployed and on time-limited sick leave. At follow-up 10 (62.5%) participants in the control condition and 12 (66.6%) participants in the ACT group were found in the negative outcome category (i.e., were on disability pension or on sick leave). There was no significant difference between the groups regarding positive and negative outcome ($\chi^2 = 0.064, p = .80$).

Discussion

The aim of this study was to investigate the feasibility and effectiveness of brief ACT for individuals with depression on long-term sick leave from unemployment. Results showed that the ACT group reported significantly less depression and improved general health and quality of life from pretreatment to the 18-month follow-up compared to the control condition. Although there was a large effect size for depression in favor of the ACT group, the reduction in scores was not as great as those observed in previous trials of ACT for depression (Forman et al., 2007; Petersen & Zettle, 2009; Zettle & Hayes, 1986; Zettle & Rains, 1989). Speculatively, the relatively modest reductions in depression for the ACT group in this trial might be due to the short intervention (6 sessions) compared with 12 sessions in the previous protocols of ACT for depression, and as Zettle and Rains point out, the results of ACT may be attenuated when delivered in group format. Also, most of the participants were still on sick leave from unemployment after treatment. As mentioned in the introduction, unemployment is associated with persistency of depression and less favorable treatment outcomes and sick absenteeism predicts future depression.

The reduction in self-reported depression in the ACT group for those with BDI scores indicating moderate to severe depression was greater than for the group as a whole and with a large effect size in line with the meta-analysis of group therapy for depression (McDermut, Miller, & Brown, 2001). This indicates that the improvement in self-reported depression was attenuated by including participants with subclinical BDI scores, perhaps by leaving little room for improvement in already low scores. Inclusion of these participants was due to ethical considerations and to increase the external validity of the

Table 4
Employment, Sick Leave, and Pension Disability Status at Pretreatment and at 18-Month Follow-up for the ACT and the Control Condition

	ACT N (%)	Control Condition N (%)
Pretreatment		
Unemployed and on time-limited sick leave	18 (100)	16 (100)
18-month follow-up		
Positive outcome		
Declared fit and employed	3 (16.7)	2 (12.5)
Declared fit and unemployed	3 (16.7)	4 (25.0)
Negative outcome		
Pension disability	8 (44.4)	9 (56.3)
Continued sick-leave and unemployment	4 (22.2)	1 (6.2)

Note. ACT=Acceptance and Commitment Therapy

study. Participants in the study were invited and included within the framework of formal regulations that apply to all individuals in Sweden on sick leave from unemployment due to depression. Participants were on long-term sick leave due to depression as certified by their physician. At the same time, one may justifiably argue that, on the basis of the subclinical BDI scores, some participants were not depressed. A majority of the participants showed a long-term negative outcome at the 18-month follow-up, adding evidence of their distressed life situation. Also, they gave verbal reports of long-standing recurrent depression.

The improvement in general health was not as striking as that reported by Flaxman and Bond (2010), perhaps due to their sample of healthy (i.e., nondiagnosed) employees. Regarding general mental health and quality of life, there were significant interaction effects with medium effect sizes in favor of ACT. Speculatively, these self-reported improvements, including depression, might indicate that the treatment was effective to a certain degree with regard to the subjective experience of internal events and quality of life. However, perhaps the short treatment could not sufficiently impact the problematic social situation experienced by the current population as reflected in results on the perceived stress ratings. Changing the social context is probably very important given the detrimental consequences of unemployment and sick leave described in the introduction.

Improvements in regard to sick leave and unemployment status were not observed as large proportions of both groups received disability pension (ACT group: 44.4%; control condition: 56.3%) within the study period. This is a substantially larger proportion than that of the entire Swedish population of unemployed individuals on sick leave (6%; Riksförsäkringsverket, 2002). When taking into account the wide range of risk factors associated with disability pension that participants in this study displayed at baseline, this is perhaps not surprising. They exhibited multiple risk factors that previous studies have linked to

disability pension such as psychiatric disorders and long-term sick leave (Karlsson et al., 2008; Shiels, Gabbay, & Ford, 2004). In addition, a significant portion of participants in the current study were unmarried, divorced, or living alone, characteristics associated with poorer treatment outcomes in studies of CBT for depression (Jarrett, Eaves, Grannemann, & Rush, 1991; Thase, 1992) and with increased risk of disability pension (Riksförsäkringsverket, 2002). Thus, the current sample showed multiple pathogenic factors in combination with short treatment in group format that might have contributed to the relatively modest outcome in depression scores.

The outcome of ACT in the present study, in terms of reduced sick leave, was not as encouraging as in the study by Dahl et al. (2004). However, further comparisons between the two studies need to take into account the differences in the participants' baseline characteristics. Participants in the study by Dahl et al. were employed with 1 sick day a month on average. This stands in contrast to the sample in the current study of unemployed individuals with almost 1 year of consecutive sick leave on average, indicating greater social vulnerability and functional impairment.

This study has several limitations that need to be addressed. It was not established whether the physicians used a standardized interview for psychiatric diagnosis. This reduces the reliability and validity of the depression diagnosis, a limitation particularly apparent in light of the inclusion of clients with subclinical BDI scores. There were also no data available on the use of care among participants in the control condition and the study did not control for attention placebo effects or common factors. Thus, the outcome in favor of ACT may have been due to nonspecific factors. Further, the study did not assess adherence to ACT principles, although fidelity to the ACT model and treatment was monitored by regular supervision. Considering that the therapists were fairly novice, this limitation is arguably of importance. A previous study

of ACT with novice therapists used independent fidelity raters blind to treatment conditions (Forman et al., 2007) and found that novice therapists were highly adherent to ACT. As subjects were informed of the result of the randomization, there was also risk of a demoralization effect for those in the control condition. As mentioned, one participant was explicitly disappointed and demanded to be removed from the study.

The current study raises a number of questions relevant for clinicians and researchers. The significant, yet relatively small, improvements in self-report measures and the lack of effectiveness regarding employment and sick leave need to be considered. The study was not designed to determine whether the results could be attributed to the limited number of sessions, the group format of ACT, therapist variables, client variables, limitations in study design, or treatment content. However, we wish to offer some comments based on our experiences from this study. Clinicians are advised to take into account employment issues when treating depression, particularly unemployment and sick leave, as both empirical data and our observations point to its importance for depression. Also, in our opinion, six sessions were not sufficient to address both the psychological aspects of this matter (i.e., depression, unemployment, and sick leave) and the practical aspects of ending sick leave and searching, applying for, and retaining employment. It also became obvious to therapists during the course of treatment that most clients had adverse experiences from past jobs (e.g., bullying and harassment). Thus, ending sick leave and finding a job was not simply a practical matter. In many cases, discussions concerning work elicited strong aversive private events. The group format was also problematic in that it did not allow for the extension of ideographic analyses into necessary adaptations of interventions that might have had greater impact on participants. Due to the many adverse experiences of work these clients presented, perhaps more seasoned therapists are needed for reaping the full benefit of ACT. We would like to encourage researchers interested in the subject matter of co-occurring unemployment, sick leave, and depression to further test the usefulness of ACT using study designs without the limitations in this preliminary study. This includes the use of well-defined control conditions (e.g., active treatments), controlled diagnostic procedures, assessment of therapist fidelity, and larger samples. We would also encourage researchers to use designs and measures that permit formal evaluation of mediating mechanisms of ACT for this population.

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