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Acceptance and Commitment Therapy Group Treatment for Symptoms of Borderline Personality Disorder: A Public Sector Pilot Study

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A pilot study of a brief group-based Acceptance and Commitment Therapy (ACT) intervention (12 two-hour sessions) was conducted with clients of public mental health services meeting four or more criteria for borderline personality disorder (BPD). Participants were randomly assigned to receive the ACT group intervention in addition to their current treatment (ACT+TAU; N=21) or to continue with treatment as usual alone (TAU; N=20). There was significantly more improvement from baseline for the ACT+TAU condition than the TAU condition on the primary outcome variable—self-rated BPD symptoms. The ACT+TAU gain was both clinically and statistically significant. The ACT+TAU condition also had significantly more positive change on anxiety and hopelessness, and on the following ACT consistent process variables: psychological flexibility, emotion regulation skills, mindfulness, and fear of emotions. For all but anxiety, the improvements for the ACT+TAU condition were significant, while the TAU condition had no significant changes on any measure. Follow-up was possible for only a small number of participants. The improvements gained by the ACT+TAU participants were maintained except for fear of emotions. Anxiety continued to improve, becoming significantly different from baseline at follow-up. Examination of mediators found that psychological flexibility, emotion regulation skills and mindfulness, but not less fear of emotions, mediated BPD symptoms. Psychological flexibility and emotion regulation skills also mediated hopelessness. There is a need for a larger trial, for comparison with other established treatments for BPD, and for conducting a trial of a longer intervention. Nonetheless, this pilot study suggests that a brief group-based ACT intervention may be a valuable addition to TAU for people with BPD symptoms in the public sector.

Borderline personality disorder (BPD) is a condition characterized by pervasive affective, cognitive, behavioral, and interpersonal difficulties, and is often associated with marked disability (Lieb, Zanarini, Schmahl, Linehan, & Bohus, 2004). BPD is characterized by difficult feelings (intense and fluctuating negative emotions), problematic behaviors (angry outbursts, acting in potentially self-damaging ways on impulse, deliberate self-harm, and/or frantic efforts to avoid abandonment), unstable and intense interpersonal relationships and/or disturbances in the sense of self (unstable self-image, feelings of emptiness, dissociation, transient psychosislike symptoms; American Psychiatric Association, 2000). There have been considerable advances in the treatment of this disorder over the last two decades and there is now evidence for the efficacy of several therapies for BPD. These include Dialectical Behavior Therapy (DBT; Linehan, 1993), Mentalization Based Therapy (Bateman & Fonagy, 1999), Transference-Focused Psychotherapy (Clarkin, Kernberg, & Yeomans, 1999), and Schema Therapy (Giesen-Bloo et al., 2006).

Group therapies for BPD symptoms are less resource intensive and have also shown promise (Monroe-Blum & Marziali, 1995; Soler et al., 2009; Wood, Trainor, Rothwell, Moore, & Harrington, 2001), as have group treatments added to treatment as usual (TAU) (Blum, Pfohl, St. John, Monahan, & Black, 2002; Blum et al., 2008; Gratz & Gunderson, 2006). Although ACT is proving to be an effective treatment for a range of disorders (see Twohig, 2012-this issue), there have been no published reports of successful trials of ACT for BPD, other than a group treatment which included ACT interventions by Gratz and Gunderson.

[1] Video patients/clients are portrayed by actors.

Keywords: Acceptance and Commitment Therapy; mediation; borderline personality disorder; treatment; group therapy

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In Gratz and Gunderson's (2006) study, the addition of only 14 sessions of group treatment to TAU had positive effects on self-harm, BPD symptoms, anxiety, and mood. The treatment was based on the role of experiential avoidance and emotion dysfunction in BPD and sought to teach more adaptive ways to respond to emotions. Elements of a number of therapies, including DBT, emotion-focused psychotherapy (Greenberg, 2002), traditional behavior therapy, and ACT, were included. Although there was no mediation analysis included in the study, the authors noted that the six group sessions focusing on ACT content "generated the most enthusiasm from clients during and after treatment, and appear [ed] to be the basis of much of the observed improvements" (Gratz & Gunderson, p. 33).

The symptoms of BPD can be seen as having a similar functional analysis to other disorders successfully treated by means of ACT (Twohig, 2012-this issue), and as possibly benefitting from treatment aiming to increase present-moment awareness, increase acceptance of difficult emotions, facilitate identification of values, and increase committed action on values. From the perspective of ACT, it is not intense negative affects per se that are the problem, it is experiential avoidance (which tends to increase the intensity of the negative experiences), fusion with negative thoughts, and the unhelpful choices the person makes about action—particularly actions that are against the individual's core values. Self-harm and drug or alcohol abuse can be seen as experiential avoidance strategies (Chapman, Gratz, & Brown, 2006; Strosahl, 2004). There is some research supporting the view that BPD symptom severity is related to experiential avoidance (Chapman, Specht, & Cellucci, 2005), and that BPD symptom severity is more strongly related to experiential avoidance than to emotion dysregulation, or difficulties with distress tolerance (Iverson, Follette, Pistorello, & Fruzzetti, 2011). Higher levels of experiential avoidance have been found to be associated with less likelihood of improvement in depression for those with BPD (Berking, Neacsiu, Comtois, & Linehan, 2009).

The current study is a report on a pilot of a brief ACT outpatient group treatment to supplement TAU within public sector mental health services. The study was conducted by staff of a specialist public sector mental health service in Victoria, Australia (Spectrum). The group protocol was developed based on 10 years of experience in providing residential and outpatient treatment for people with a diagnosis of BPD. Initially Spectrum's group treatment was based on DBT, then a combination of DBT and ACT, and more recently "Wise Choices," based on ACT alone, the outpatient group treatment which is the subject of this study.

It was hypothesized that participants randomly assigned to receive 12 sessions of outpatient ACT group treatment in addition to treatment as usual (ACT+TAU condition) would experience (a) significant reductions in BPD symptoms, and (b) improvements in anxiety, depression, stress, and (c) improvements in hopelessness, compared with participants who received TAU only (TAU condition).

A further aim of the study was to investigate the role of possible mediators in any improvements in the above outcome variables. If BPD symptoms are manifestations of experiential avoidance, fusion with negative thoughts, difficulties with present moment awareness, and impulsive action contrary to personal values, then psychological flexibility, mindfulness, less fear of emotions, and skills for dealing with strong emotion would be expected to mediate outcome in successful ACT treatment.

Method

Recruitment, Screening, and Condition Allocation

Potential participants were recruited via referrals from public mental health services to Spectrum. Trained research assistants assessed those referred using the schizophrenia, posttraumatic stress disorder, anxiety disorders, affective disorders, and drug and alcohol disorders scales of the Structured Clinical Interview for DSM-IV Axis I disorders (SCID-I; First, Spitzer, Gibbon, & Williams, 1997) and the BPD scale of the Structured Clinical Interview for DSM-IV Axis II Disorders (SCID-II; First, Gibbon, Spitzer, Williams, & Benjamin, 1997). All potential participants then had a clinical interview with one of the group leaders. Consistent with the ACT view that there are other multiproblem clients with similar difficulties to those with a *DSM-IV* diagnosis of BPD, groups were open to clients with four or more of the nine BPD *DSM-IV* criteria. Although the current categorical diagnostic system requires five criteria, it is widely recognized that the disorder is better considered as on a dimension of severity (Trull, Widiger, Lynam, & Costa, 2003). The presence of four or more symptoms of BPD for those accepted into the study was supported by the referring clinician, the SCID assessment, and the clinical interview.

Inclusion criteria were (a) four or more criteria of BPD; (b) a registered client of a public sector adult mental health service (c) agreement from the public sector service to arrange an inpatient admission or crisis team visit if required; and (d) any kind of regular contact (at least once in 2 weeks) with a public or private sector clinician, not necessarily for therapy. Both males and females were included, although the number of males referred was small (see Table 1 and Figure 1).

Exclusion criteria were (a) current positive or negative psychotic symptoms other than reactive psychotic symptoms associated with BPD; (b) a significant risk of violent and/or threatening behavior to other participants; (c) intellectual

Table 1
Demographic and Clinical Characteristics of Participants by Condition (N=41)

	ACT+TAU (n=21)	TAU (n=20)
Age	*mean*=35.6 (SD=9.33) (Range 19–52)	*mean*=34.0 (SD=9.02) (Range 21–54)
Gender: Female	90.5% (n=19)	95% (n=19)
Marital status: Single	52.4% (n=11)	45.0% (n=9)
Unemployed	71.4% (n=15)	70.0% (n=14)
Education:		
Did not complete high school	14.3% (n=3)	45.0% (n=9)
Completed high school	38.1% (n=8)	30.0% (n=6)
Some tertiary/ has degree	47.6% (n=10)	25.0% (n=5)
Severe childhood trauma /deprivation	95.0% [A] (n=19)	94.1% [B] (n=16)
PTSD past or present	94.7% [C](n=18)	64.7% [B] (n=11)
Admission in past 3 months	47.6% (n=10)	42.1% [A] (n=8)
More than 10 lifetime admissions	42.8% (n=9)	31.6% [A] (n=6)
Number of BPD criteria	*mean*=6.0 (SD=1.34)	*mean*=6.5 (SD=1.64)
Primary Axis I diagnosis:		
Major Depressive Disorder	66.7% (n=14)	50.0% (n=10)
Bipolar Disorder	19.0% (n=4)	25.0% (n=5)
Schizoaffective Disorder	0% (n=0)	5.0% (n=1)
Panic Disorder	0% (n=0)	5.0% (n=1)
Depression - other	0% (n=0)	5.0% (n=1)
Age first self-harm	*mean*=18.5 (SD=9.51)	*mean*=18.4 (SD=11.6)
Suicide attempt in lifetime	85.7% (n=18)	85.0% (n=17)
Suicide attempt past year	47.6% (n=10)	45.0% (n=9)
Self-harm frequency in past 3 mos.	*mean*=9.1 (SD=21.9)	*mean*=18.5 (SD=30.5)
Violence last year	14.3% (n=3)	35.0% (n=7)
Current alcohol dependence	25.0% [A] (n=5)	20.0% (n=4)
Current substance dependence	20.0% [A] (n=4)	15.0% (n=3)

[A] Missing data/refused to answer=1.
[B] Missing data/refused to answer=3.
[C] Missing data/refused to answer=2.

disability, cognitive impairment, or difficulty speaking English, severe enough to interfere with participation. There were no exclusion criteria based on gender, level of suicidality, lethality of recent suicide/self-harm attempts, history of aggression towards others, drug abuse, or presence of bipolar disorder. A recent history of self-harm was not required, and the study was thus open to six participants who had not self-harmed in the last year, including three clients who had never self-harmed. For clients with a history of violence, an assessment of the person's likely risk to other group members was made by an experienced clinician at the screening interview and no one was excluded on this basis.

All participants provided written informed consent. Groups were run at four locations across Melbourne. Three of these were in predominantly lower socio-economic status (SES) areas and one in a middle SES area. Figure 1 shows the flow of participants. Forty-seven clients were screened and 6 were excluded, leaving 41 clients who had been recruited by the time that the groups were scheduled to commence.

Available participants at each location were randomized to ACT+TAU or TAU, after stratification of the sample based on the presence or absence of two or more self-harm episodes in the last year. This stratification of the sample was done in order to ensure equal base rates across the conditions, as recent self-harm was not a criterion of inclusion in the trial. This resulted in four ACT groups in four locations, each with 4 to 6 participants.

Participants

Demographic and clinical characteristics of participants in each condition are provided in Table 1. Twenty-one participants (19 females and 2 males) were assigned to the ACT+TAU condition, and 20 (19 females and 1 male) to the TAU condition. Information on session attendance and completion of questionnaires is provided in Figure 1.

The participants manifested a high level of social disadvantage, early trauma, and psychiatric disturbance

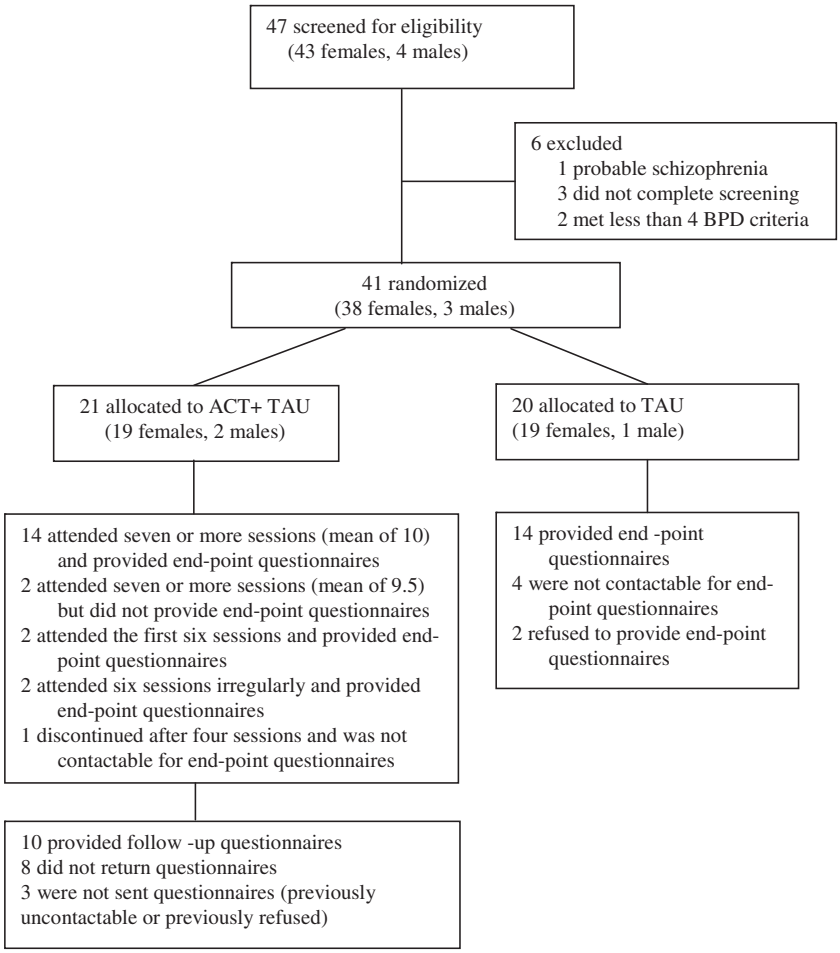

Figure 1. Consort diagram of flow of participants in the study.

(see Table 1). Forty-six percent had made a suicide attempt in the last year. Although clients with only four criteria of BPD were accepted into the study, only three of the ACT+TAU clients and two of the TAU clients had less than five criteria, and the average number of criteria met was 6.0 for ACT+TAU and 6.5 for TAU.

The ACT+TAU and TAU conditions did not differ significantly ($p>.05$) on any of the demographic and clinical characteristics listed in Table 1, except for PTSD, with the ACT+TAU condition more likely to meet the criteria for a diagnosis of present or past PTSD, $\chi^2(1)=6.17$, $p=.010$. However, there was no significant difference in the proportion of participants reporting severe trauma and/or deprivation on clinical interview (95% of ACT+TAU, 94% of TAU). Also, 7 of the 12 participants who did not receive a diagnosis of PTSD due to not reporting a trauma in the SCID-I interview with a research assistant described histories of severe trauma and/or deprivation on clinical interview, and a further 3 refused to answer questions about trauma and deprivation in both the clinical interview and the SCID-I.

Statistical tests were conducted to determine whether those who were assigned to a condition but did not provide two data points ($n=9$) differed from the other participants ($n=32$). No statistically significant differences were found on any of the initial questionnaire scores or on any demographic variables (all $p>.05$).

ACT Group Treatment

The ACT groups, Wise Choices, ran for 2 hours with a 10-minute break after 1 hour. The groups had a psychoeducational format, with participants sitting at a table and taking notes. Group norms limited the intensity of the presentation of potentially "triggering" material, allowing the mention of self-harm urges and acts, and trauma, in broad outline, but not allowing detailed accounts, that other participants may find overwhelming. Each session commenced with a brief check-in, a review of home practice and a brief (1 to 5 minutes) mindfulness practice, such as mindfully eating a raisin, mindful exploration of an object using the five senses, mindful

Video 1. Group discussion of the avoidance loop.

walking, or a body scan. The majority of these were brief versions of the mindfulness exercises described in Segal, Williams, and Teasdale (2002).

The intervention included all components of standard ACT treatment, although "self as context" was covered only indirectly through the experience of brief mindfulness exercises, including "leaves on a stream" (Hayes, 2005, pp 76–77). Colorful handouts summarizing key points in pictures and simple jargon-free language were distributed. The ACT metaphor "passengers on the bus" (Hayes, Strosahl, & Wilson, 1999, pp. 157–158) was used as a central theme throughout most of the sessions. This metaphor talks about the pressure from "difficult passengers" (thoughts and feelings) on the "driver" of one's "life bus" to turn off from the path of values-based action and take what appears to be an easier road, based on efforts to avoid aversive internal experiences.[2]

A range of defusion techniques were taught, including "just noticing" thoughts and "letting them be there like a radio in the background." Emotions skills training focused on noticing the bodily experience of various emotions, describing bodily experiences ("if it had a color, what color would that be? If it had a shape . . .") and on mindfulness and acceptance strategies (e.g., "make space for it, allow it to be there"). There was an emphasis on the value of emotions as part of a full, rich, and meaningful life.

[2] Video 1 shows group members exploring an example of experiential avoidance using the "avoidance loop," a diagram based on the "passengers on the bus" metaphor.

Many participants had initial difficulties with values awareness (see Video 2). In order to moderate shame and distress about not living up to the values that were identified, there was a focus on identifying small ways in which participants were already acting on their values (see Video 3). If a group member found it difficult to identify actions in line with values, the group leaders would assist with comments such as "I think you are showing courage right now by sharing your values with the group." Video 3 also illustrates a simple defusion technique used to help participants defuse from self-critical thoughts about values — writing the words on the whiteboard enclosed by quotation marks as an aid to "just noticing" the thought as a "bunch of words." Initially some group members identified a range of socially acceptable roles or family obligations as values. Group members were assisted to distinguish values from "shoulds" by noticing the vitality that is associated with acting according to values (see Video 4).

A particularly helpful values awareness technique involved using a negative description of someone a group member did not approve of to form hypotheses about values (see Video 5). For example, if a participant said, "My case manager doesn't listen to me or care about me," then the group leader might ask, "So maybe you value listening to and caring about others?" If the participant was not comfortable with a positive description of a value, then the negatively worded value "*not* someone who doesn't listen or care," or "not like my case manager," was used, along with ongoing efforts to find a positive wording.

There was considerable emphasis on identifying "choice points" for action, when difficult thoughts and

Video 2. Group members may find discussing values difficult.

Video 3. Values as small steps in a valued direction.

Video 4. Exploring the difference between values and "shoulds."

feelings are triggered and there is a temptation to take action (such as self-harm, drug use, an angry outburst or social withdrawal) that is inconsistent with one's values. Participants were taught that no matter what difficult thoughts or emotions arise, there is always the option to choose to take action in line with values, or to do nothing. They were encouraged to make changes in their actions and to live according to their values, rather than attempting to change thoughts or emotions.

Sessions concluded with discussion of ideas for home practice, including planning small steps in a valued direction (see Video 6). In line with an emphasis on making wise choices, home practice was encouraged but optional. Home practice was discussed as "experiments" that would help participants clarify what was truly important to them and identify difficult thoughts and feelings that arose as obstacles to values-based action so that these could be worked on in group.

The outpatient ACT groups evolved from earlier residential treatment groups that had contained elements of both ACT and DBT. However, when the outpatient groups commenced, the decision was made to use only the ACT components. Some of the groups included content similar to DBT groups, but these were modified to ensure ACT consistency. One of these was a DBT group exercise that teaches mindfulness of pleasurable sensory experiences as a self-soothing technique (Linehan, 1993). This same exercise was used, but with an emphasis on pleasurable experience as part of a full, rich, and meaningful life rather than as way of coping with distress. Participants were encouraged to "just notice" difficult thoughts—such as, "I deserve punishment not pleasure" or "I can't enjoy anything"—and to mindfully refocus on the object. If the exercise triggered painful feelings, such as sadness, participants were encouraged to "make space" for these, but not be turned aside from a path of self-compassion and self-care—including pleasurable experiences. Also included were two interpersonal skills practice sessions, one on reaching out to others and one on negotiation skills. These were presented in the context of participants' relationship values (for example, reaching out to others, giving and receiving affection, fairness, justice), rather than as "interpersonal effectiveness" (DBT). The

Video 5. Values awareness exercise – a person I don't approve of.

exercises were used as opportunities to practice mindfulness and acceptance strategies for difficult thoughts and feelings arising in interpersonal relating and to notice how experiential avoidance tends to interfere with values-based action in relationships.

Clinicians were instructed not to include any CBT change strategies such as cognitive challenge. Efforts were made to ensure treatment fidelity via review of group materials by ACT trainer Russ Harris and via consultation and supervision sessions, which included discussion framed by the ACT Competencies Checklist (Luoma, Hayes, & Walser, 2007). An outline of the 12 sessions is provided in Table 2. A copy of the treatment manual, including the handouts and group session outlines (Morton & Shaw, 2012) is available from Spectrum.

Treatment as Usual

All participants in the study continued with TAU, which was provided mostly by public mental health services, and typically consisted of low-key supportive contacts, medication management, with in-patient admissions and crisis contacts if required. Contact with a clinician at least once every 2 weeks was required. In the 12 weeks prior to intake into the study, 29 participants (71%) saw both a medical and a nonmedical clinician, 11 participants (27%) saw only nonmedical clinicians, and 1 participant (2%) saw only a medical practitioner. The average number of appointments per month was six, typically consisting of weekly to monthly medication reviews with a public sector psychiatrist or registrar, or a local general practitioner, and weekly to monthly appointments with a local public sector mental health service, usually for what was described as case management. Eleven participants (27% of the total) described the service they received as therapy or counseling, rather than case management or medication review. In addition to medication review and case management, 5 participants (12%) saw a public sector sexual assault service clinician, 4 (10%) saw an alcohol and drugs service, or

Video 6. Planning a small step in a valued direction.

attended Alcoholics Anonymous, and 6 (15%) received visits from family support agencies.

Data Collection

ACT+TAU participants completed self-report measures before the first session, at the completion of the series of groups 13 weeks later and at follow-up 13 weeks after the final group session. TAU participants continued in their usual treatment while on a waiting list to commence group treatment. They completed self-report measures at the start of the waiting list period and at the end of the waiting list period 13 weeks later. Attempts were made to contact all participants to complete questionnaires.

Measures

Diagnosis

As described above, selected *DSM-IV*, Axis I and Axis II diagnoses were obtained using the SCID-I and the SCID-II, respectively. These semistructured instruments provide reliable diagnoses for Axis I disorders (Zanarini et al., 2000) and Axis II disorders (Maffei et al., 1997).

BPD Symptoms

The Borderline Evaluation of Severity over Time (BEST; Pfohl & Blum, 1997) is a brief self-report measure of degree of impairment on BPD criteria over the past month, which was developed to assess outcomes for the STEPPS program (Blum et al., 2002). BPD-specific symptom severity is assessed across three domains: negative thoughts and feelings, negative behaviors, and positive behaviors, which have a possible range from 8 to 40, 4 to 20, and 3 to 15, respectively, with higher scores indicating greater severity. The BEST Composite is an aggregate score that ranges from 12 to 72. The measure was sensitive to change, had good internal consistency (Cronbach $\alpha = 0.86$), moderate test-retest reliability, and adequate convergent and discriminant validity (Pfohl et al., 2009). Although normative data have not been published, Gratz and Gunderson (2006) referred to a group of non-PD outpatients with a mean BEST Composite score of 21.5 ($SD = 7.83$).

Table 2
Overview of Group Sessions

1. ***Introduction to ACT and mindfulness:*** introductions; group norms; foundations of Acceptance and Commitment Therapy; introduction to mindfulness practice —mindful exploration of an object; "passengers on the bus" metaphor.
2. ***Avoidance and values:*** further exploration of "passengers on the bus" metaphor, identifying difficult "passengers" (thoughts and feelings); the "avoidance cycle" (short-term relief, long-term life constriction); preliminary work on identifying values.
3. ***Willingness and acceptance:*** attempts to fight with or avoid pain lead to additional suffering; willingness —"tug of war with a monster" exercise; experimenting with different ways of relating to painful experiences; willingness metaphors.
4. ***Awareness of thoughts:*** how the mind works; noticing judgments ("good cup–bad cup" exercise); defusion exercises including "milk, milk, milk" and "bad news radio."
5. ***Mindfulness of pleasure:*** exploring pleasurable sensations via the five senses while noticing difficult thoughts and feelings that may arise and "making space" for these. Pleasure as part of a full, rich, and meaningful life.
6. ***Emotion awareness and acceptance:*** practicing acceptance strategies with emotions, body sensations, and urges. Strategies for acting in line with personal values, or doing nothing, even when emotions are strong.
7. ***Health issues:*** exploring values and experiential avoidance related to health.
8. ***Acting on relationship values—reaching out:*** in-session practice of giving and receiving compliments, and conversation skills. Practicing awareness and acceptance of difficult thoughts and feelings that arise, while continuing to act on values.
9. ***Acting on relationship values in conflictual situations***: practice of assertiveness and negotiation skills.
10. ***Choice points:*** noticing "choice points"; further exploration of values; planning a small step in a valued direction; discussion of likely internal obstacles (difficult thought and feelings).
11. ***Obstacles:*** review of the planned small step; exploration of difficult thoughts and feelings that arose; practice of mindfulness and acceptance strategies.
12. ***Review and celebration.***

Note. Many versions of classic ACT exercises have been published, for example in Hayes et al. (1999), Hayes (2005), and Follette and Pistorello (2007). However, nearly all the exercises used were adapted somewhat to suit the needs of people with BPD symptoms and new exercises were devised. Hence, the best guide is the treatment manual, Morton and Shaw (2012) which is available from Spectrum via the website www.spectrumbpd.com.au.

Depression, Anxiety, and Stress

The Depression Anxiety Stress Scale (DASS; S. H. Lovibond & P. F. Lovibond, 1995) is a 42-item questionnaire that measures depression, anxiety, and stress. Internal consistencies ranged from 0.89 to 0.96 and test-retest reliabilities ranged from 0.71 to 0.81 (Brown, Chorpita, Korotitsch, & Barlow, 1997). The scales also have adequate construct and discriminant validity (Antony, Bieling, Cox, Enns, & Swinson, 1998; Brown et al., 1997; P. F. Lovibond & S. H. Lovibond, 1995). This study used a 21-item version of the DASS, which is comparable to the 42-item version, with internal consistencies from .87 to .94 (Antony et al., 1998). Scores on subscales of the 21-item version are multiplied by two and so range from 0 to 42, with distributions found to be highly positively skewed in a large nonclinical sample (Henry & Crawford, 2005). Suggested cutoffs for normal, mild, moderate, severe, extremely severe for depression are (9, 13, 20, 27, 42), for anxiety (7, 9, 14, 19, 42), and for stress (14, 18, 25, 33, 42) (P. F. Lovibond & S. H. Lovibond, 1995).

Hopelessness

The Beck Hopelessness Scale (BHS; Beck & Steer, 1988) is a 20-item checklist that assesses negative attitudes about the future. The range of scores is from 0 to 20, with higher scores reflecting a more pessimistic outlook. Scores of 9 or more were associated with an 11 times higher suicide rate than scores of 8 or below (Beck, Brown, Berchick, Stewart, & Steer, 1990). The scale has high internal consistency with Kuder-Richardson reliabilities ranging from 0.87 to 0.93 across clinical and nonclinical samples, adequate test-retest reliability of 0.69, as well as satisfactory concurrent and discriminant validity (Beck & Steer; Beck, Steer, Beck, & Newman, 1993).

Psychological Flexibility

The Acceptance and Action Questionnaire (AAQ; Hayes et al., 2004) was developed as a tool to assess experiential avoidance of difficult thoughts and emotions and readiness to take action based on values. Despite its popularity and good convergent validity, there had been inconsistent findings on the factor structure and issues with comprehension on some items. This study used a 10-item version of the AAQ-II, which was being developed to address these issues. The AAQ-II 10-item version was found to have a good internal consistency of 0.83 and a 3-month test-retest reliability of .80, as well as adequate convergent, discriminant, and concurrent validity. The mean of a normative sample was 50.7 (SD=9.19; Frank Bond, personal communication, August 2007). Range of scores is from 10 to 70, with higher scores indicating greater psychological flexibility. Recently the AAQ-II has been revised to a 7-item scale with a single factor structure (Bond et al., 2011).

Mindfulness Skills

The Five Factor Mindfulness Questionnaire (FFMQ; Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006) is a 39-item 5-point Likert scale measured on five facets: observing,

describing, acting with awareness, nonjudging of inner experience, and nonreactivity towards inner experience. Scores range from 39 to 195 with higher scores indicating more mindfulness in daily life. Internal consistencies for the five facets (which all loaded significantly onto the overall mindfulness construct) ranged from 0.75 to 0.91. Adequate convergent and discriminant validity have been shown for the five facets (Baer et al., 2006). For a normative sample of undergraduates the mean was 126 (*SD*=13.8; Van Dam, Earleywine, & Danoff-Burg, 2009).

Fear of Emotions

The Affective Control Scale (ACS; Williams, Chambless, & Ahrens, 1997) is a 42-item, 7-point Likert, self-report measure assessing fear of emotions, fear of acting inappropriately when experiencing high levels of emotion, and attempts to control emotional experience. It was developed to test the view that fear of emotion is a common factor in a range of disorders including generalized anxiety disorder (Roemer, Salters, Raffa, & Orsillo, 2005) and panic disorder (Smits, Powers, Cho, & Telch, 2004). Items include fear of anxiety, fear of depression, fear of anger, and fear of positive emotions, with higher scores indicating more fear. The ACS total score has good internal consistency (Cronbach $\alpha = .94$), 2-week test-retest reliability of 0.78, and good convergent and discriminant validity (Berg, Shapiro, Chambless, & Ahrens, 1998; Williams et al., 1997). The possible range is from 1 to 7, with higher scores indicating more fear. The mean for a female undergraduate sample was 3.4 (*SD*=0.78; Williams et al.).

Emotion Regulation

The Difficulties in Emotion Regulation Scale (DERS; Gratz & Roemer, 2004) is a 36-item, 5-point Likert measure that assesses difficulties with strong emotions. Items included nonacceptance of negative emotions, inability to engage in goal-directed behaviors when experiencing negative emotions, difficulties controlling impulsive behaviors when experiencing negative emotions, limited access to emotion-regulation strategies perceived as effective, lack of emotional awareness, and lack of emotional clarity. The DERS has been found to have high internal consistency (Cronbach $\alpha = .93$), test-retest reliability of 0.88 over a 4- to 8-week period, and adequate convergent and predictive validity. Scores can range from 36 to 180, with higher scores indicating poorer functioning. The mean in a sample of undergraduate students was 78 (*SD*=20.7; Gratz & Roemer, 2004).

Results

The primary outcome measure was the BEST Composite and all other measures were secondary. Scores were analyzed using mixed model procedures (Raudenbush & Bryk, 2001), which allowed for all available data to be used in the analyses. This approach takes into account the obtained outcomes and missingness for participants with missing data, somewhat reducing the analytic problem presented by missing data. Compound symmetry covariance matrices were used as they were found to provide better model fit with fewer parameters than unstructured matrices as determined by the restricted log likelihood. Main fixed effects were condition (ACT+TAU vs. TAU) and time, with Condition × Time as the interaction factor, and participants as the random factor within time. Denominator degrees of freedom for the fixed effects test statistics were based on the Satterthwaite approximation. Repeated measures ANOVAs using only observed data, and thus including only 18 of the ACT+TAU participants and 14 of the TAU participants, were run for comparison purposes. These resulted in the same conclusions as those obtained using mixed model procedures.

Analysis of outcome measures at baseline indicated no significant between-condition differences (all $ps > 0.05$). Effect sizes (Cohen's *d*) were calculated by the method suggested for repeated measures and multilevel designs by Rosenthal and Rosnow (1991) and were interpreted using the commonly used guidelines proposed by Cohen (1992: .2–.49 = small, .5–.79 = moderate, .8 or more = large). Clinical significance of the observed treatment effects for the primary outcome variable (BEST Composite), for those participants with both pre and post data points, was evaluated using the two criteria proposed by Jacobson and Truax (1991): that the change in score was statistically reliable (|Reliable Change Index (RCI)|>1.96) and that the score at the end of treatment was more likely to be from a nonclinical distribution than from the clinical distribution defined by initial scores.

Changes in Symptoms

Primary Outcome Variable

Means and standard deviations of observed scores are shown in Table 3. The BEST Composite interaction between treatment condition and time was significant [estimate=9.71, SE=4.21, $t(32.5)=2.30$, $p=.028$, 95% CI: 1.13, 18.28, $d=.81$], with a significant and large improvement in the ACT+TAU mean [estimate=−11.52, SE=2.75, $t(30.8)=-4.18$, $p=.000$, 95% CI: -17.14, -5.90, $d=.99$] and no significant change in the TAU mean [estimate=−1.80, SE=3.19, $t(33.8)=-.57$, $p=.575$, 95% CI: -8.28, -4.67, $d=.15$] (See Figure 2.) The power to detect this significant and large interaction effect was only 0.62, reflecting the small sample size. The ACT+TAU mean moved from 2.9 to 1.4 standard deviations away from the mean for a sample of outpatients without a personality disorder (referred to in Gratz & Gunderson, 2006). Further, 29.4% of the ACT+TAU condition met both clinical significance criteria for the BEST Composite after treatment compared with none of the TAU condition.

Table 3
Means and Standard Deviations of Observed Scores

	ACT Group + TAU (n = 21, follow-up n = 10)			TAU (n = 20)	
Measure	Pre-*Mean* (SD)	Post-*Mean* (SD)	Follow-up *Mean* (SD)	Pre- *Mean* (SD)	Post- *Mean* (SD)
BEST Composite	44.57 (11.16)	32.76 (12.47)	30.60 (11.95)	49.80 (12.35)	47.42 (11.00)
BEST BPD Thoughts and Feelings	27.00 (7.73)	20.47 (9.45)	18.40 (9.07)	29.90 (7.52)	28.67 (7.76)
BEST BPD Negative Behaviors	11.33 (3.58)	7.12 (2.18)	7.20 (2.82)	12.25 (4.98)	10.83 (4.22)
BEST BPD Positive Behaviors	8.76 (2.62)	9.82 (2.88)	10.00 (2.00)	7.35 (3.18)	7.08 (3.06)
DASS Stress	28.48 (10.04)	26.55 (11.58)	22.22 (11.93)	30.3 (10.16)	31.57 (9.93)
DASS Anxiety	23.33 (9.34)	19.67 (11.02)	14.67 (13.23)	24.20 (11.76)	26.28 (8.33)
DASS Depression	31.52 (10.86)	22.67 (14.73)	16.00 (14.21)	33.70 (8.74)	31.00 (8.51)
BHS	14.40 (4.87)	9.70 (6.34)	7.50 (5.38)	15.70 (3.58)	16.43 (3.69)
AAQ-II	24.10 (9.29)	35.3 (10.8)	37.0 (6.3)	22.55 (8.32)	23.1 (7.1)
DERS Total	131.76 (25.15)	113.04 (17.64)	104.76 (20.52)	134.42 (19.45)	140.04 (20.88)
FFMQ Total	96.52 (23.01)	108.81 (19.11)	111.54 (19.11)	92.15 (20.81)	90.87 (20.67)
ACS Total	4.86 (.74)	4.35 (.65)	4.47 (.77)	4.93 (.68)	5.08 (.56)

Note. BEST = Borderline Evaluation of Severity Over Time; DASS = Depression Anxiety Stress Scale; BHS = Beck Hopelessness Scale; AAQ-II = Acceptance and Action Questionnaire–II; DERS = Difficulties in Emotion Regulation Scale; FFMQ = Five Factor Mindfulness Questionnaire; ACS = Affective Control Scale.

BPD Symptoms

The condition interactions with time for the subscales of BPD Thoughts and Feelings [estimate = 6.54, SE = 2.72, $t(32.4) = 2.41$, $p = .022$, 95% CI: 1.01, 12.07, $d = .85$] and BPD Negative Behaviors were also significant [estimate = 2.87, SE = 1.38, $t(30.5) = 2.08$, $p = .046$, 95% CI: .05, 5.69, $d = .75$]. For both subscales there were significant and large effect sizes for the ACT + TAU condition [BPD Thoughts and Feelings estimate = −6.60, SE = 1.77, $t(30.9) = -3.72$, $p = .001$, 95% CI: -10.21, -2.98, $d = .88$; BPD Negative Behaviors estimate = −3.98, SE = .90, $t(28.8) = -4.42$, 95% CI: -5.82, -2.14, $p = .000$, $d = 1.05$], but no significant change for the TAU condition [BPD Thoughts and Feelings estimate = −.05, SE = 2.05, $t(33.6) = -.03$, $p = .979$, 95% CI: -4.24, 4.13, $d = .01$; BPD Negative Behaviors estimate = −1.11, SE = 1.04, $t(31.8) = -1.06$, $p = .296$, 95% CI: -3.23, 1.02, $d = .29$]. However, for the other BEST subscale, Positive Behaviors, the condition interaction with time was not significant [estimate = −.75, SE = 1.21, $t(29.3) = -.61$, $p = .544$, 95% CI: -3.23, 1.74, $d = .23$].

Depression, Anxiety, and Stress

The condition interactions with time for both the DASS Depression subscale and the DASS Stress subscales were nonsignificant [Depression estimate = 6.51, SE = 3.93, $t(34.6) = 1.66$, $p = .107$, 95% CI: -1.47, 14.49, $d = .56$; Stress: estimate = 4.20, SE = 4.16, $t(36.1) = 1.01$, $p = .319$, 95% CI: -4.23, 12.64, $d = .34$]. The condition interaction with time for the DASS Anxiety subscale was significant [estimate = 7.90, SE = 3.36, $t(32.0) = 2.35$, $p = .025$, 95% CI: 1.04, 14.74, $d = .83$] with the mean for the ACT + TAU condition improving nonsignificantly with a small effect size [estimate = −3.92, SE = 2.24, $t(30.9) = -1.74$, $p = .091$, 95% CI: -8.50, .662, $d = .41$] and the TAU condition actually deteriorating nonsignificantly with a small effect size [estimate = 3.98, SE = 2.50, $t(32.9) = 1.59$, $p = .121$, 95% CI: -1.11, 9.07, $d = .41$].

Hopelessness

There was a significant condition interaction with time effect for the BHS [estimate = 5.55, SE = 1.87, $t(33.7) = 2.96$, $p = .006$, 95% CI: 1.74, 9.36, $d = 1.02$], with the ACT + TAU

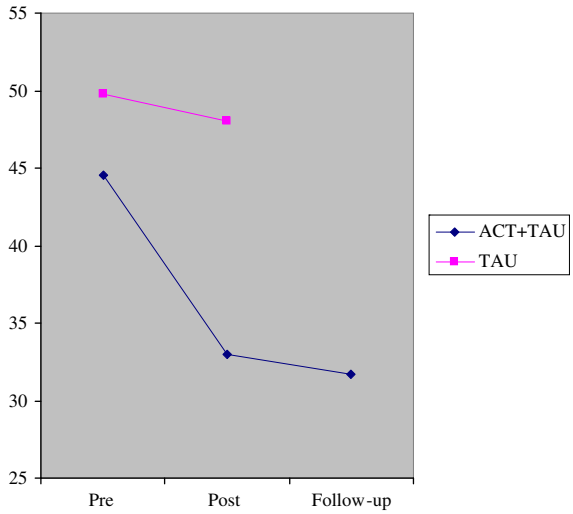

Figure 2. Means of observed BEST Composite scores over time.

condition improving significantly with large effect size [estimate = −4.93, SE = 1.27, $t(32.7) = -3.88$, $p = .000$, 95% CI: -7.51, -2.35, $d = .91$] and no change for the TAU condition [estimate = .62, SE = 1.38, $t(34.5) = .45$, $p = .656$, 95% CI: -2.18, 3.42, $d = .11$]. The ACT+TAU mean moved from 2.6 to 1.6 standard deviations from the mean for a sample of university undergraduates (Holden & Fekken, 1988).

Changes in ACT Process Variables

Psychological Flexibility

The AAQ-II condition interaction with time was significant [estimate = −9.88, SE = 3.60, $t(30.6) = -2.74$, $p = .010$, 95% CI: -17.23, -2.52, $d = .99$]. The ACT+TAU condition showed a significant improvement in psychological flexibility with a large effect size [estimate = 10.24, SE = 2.44, $t(29.7) = 4.19$, $p = .000$, 95% CI: 5.25, 15.22, $d = .98$] while the TAU condition had no significant change [estimate = .37, SE = 2.65, $t(31.4) = .139$, $p = .891$, 95% CI: -5.04, 5.77, $d = .04$]. The ACT+TAU mean moved from 2.9 to 1.7 standard deviations from the mean for a nonclinical sample (Frank Bond, personal communication, August 2007).

Emotion Regulation

The DERS total score condition interaction with time was significant [estimate = 23.94, SE = 8.48, $t(33.0) = 2.82$, $p = .008$, 95% CI: 6.69, 41.20, $d = .98$] with significant improvement and moderate effect size for the ACT+TAU condition [estimate = −19.17, SE = 5.68, $t(31.8) = -3.38$, $p = .002$, 95% CI: -30.74, -7.60, $d = .78$] and no significant change for the TAU condition [estimate = 4.77, SE = 6.30, $t(34.1) = .76$, $p = .454$, 95% CI: -8.03, 17.57, $d = .19$]. The ACT+TAU mean moved from 2.7 to 1.7 standard deviations from the mean for a sample of female undergraduates (Gratz & Roemer, 2004).

Mindfulness

The FFMQ Total condition interaction with time was significant [estimate = −12.62, SE = 5.50, $t(32.6) = -2.29$, $p = .028$, 95% CI: -23.82, -1.42, $d = .80$] with a significant increase with moderate effect size for the ACT+TAU condition [estimate = 12.30, SE = 3.71, $t(32.1) = 3.31$, $p = .002$, 95% CI: 4.74, 19.87, $d = .79$] and no significant change for the TAU condition [estimate = −.31, SE = 4.06, $t(33.1) = -.08$, $p = .939$, 95% CI: -8.58, 7.94, $d = .02$]. The ACT+TAU mean moved from 2.1 to 1.3 standard deviations from the mean for a sample of undergraduates (Van Dam, Earleywine, & Danoff-Burg, 2009).

Fear of Emotions

The ACS Total condition interaction with time was significant [estimate = .71, SE = .21, $t(30.5) = 3.33$, $p = .002$, 95% CI: .27, 1.16, $d = 1.20$] with significant improvement and moderate effect size for the ACT+TAU condition [estimate = −.54, SE = .15, $t(30.1) = -3.63$, $p = .001$, 95% CI: -.84, -.23, $d = .89$] and no significant change for the TAU condition [estimate = .18, SE = .16, $t(30.9) = 1.15$, $p = .258$, 95% CI: -.14, .50, $d = .30$]. The ACT+TAU mean moved from 2.0 to 1.3 standard deviations from the mean for a sample of undergraduates (Williams et al., 1997).

Follow-up

Three months after the end of treatment, follow-up of the ACT+TAU condition resulted in data from 10 of the 21 participants, despite an effort to contact and request questionnaires from all participants. No statistically significant differences were found on any of the initial questionnaire scores or on any demographic variables between those who provided follow-up data and those who did not (all $p > .05$). Mixed model procedures were used for the three times (baseline, post, and follow-up) for only the ACT+TAU condition. The mean scores at follow-up remained significantly different from baseline scores for the following: overall BPD symptoms [estimate = −12.88, SE = 3.22, $t(30.4) = -4.00$, $p = .000$, 95% CI: -19.46, -6.30, $d = 1.11$] (see Figure 2); BPD thoughts and feelings [estimate = −8.56, SE = 1.95, $t(28.73) = -4.40$, $p = .000$, 95% CI: -12.55, -4.58, $d = 1.24$]; BPD negative behaviors [estimate = −3.78, SE = .918, $t(31.58) = -4.12$ $p = .000$, 95% CI: -5.65, -1.91, $d = 1.13$]; hopelessness [estimate = −7.09, SE = 1.75, $t(29.25) = -4.06$, $p = .000$, 95% CI: -10.66, -3.52, $d = 1.12$]; psychological flexibility [estimate = 12.61, SE = 2.80, $t(26.22) = 4.50$, $p = .000$, 95% CI: 6.85, 18.37, $d = 1.26$]; emotion regulation skills [estimate = −25.75, SE = 7.28, $t(30.00) = -3.54$, $p = .001$, 95% CI: -40.63, -10.85, $d = .96$]; and mindfulness [estimate = 10.79, SE = 4.79, $t(28.75) = 2.25$, $p = .032$, 95% CI: .99, 20.58, $d = .63$]. However,

fear of emotions [estimate = −.37, SE = .19, $t(25.29) = -1.98$, $p = .059$, 95% CI: -.76, .01, $d = .58$] was no longer significant at follow-up. Mean anxiety continued to improve to become significantly different from baseline at follow-up [estimate = −7.68, SE = 2.85, $t(28.8) = -2.69$, $p = .012$, 95% CI: -13.52, -1.85, $d = .78$].

Mediation Analysis

The method used in the present study involved bootstrapping to approximate distributions of products. It is recommended by Preacher and Hayes (2004), Shrout and Bolger (2002) and Mackinnon, Lockwood, and Williams (2004) to avoid distribution issues, especially for small samples. SPSS syntax provided by Preacher and Hayes (2004) allowed for the construction of accelerated, bias-corrected confidence intervals. The number of bootstrap samples was set at 1,000 and the confidence interval to 95%.

The independent variable in the mediation analysis was treatment condition—coded as 0 for the TAU only condition and 1 for the ACT+TAU condition. The post scores for both mediating and outcome variables were used, and so conclusions that improvement in mediators preceded improvement in outcome were precluded. The analysis was conducted without imputation of missing values, which would be complex due to the need to reflect group effects and covariance among measures in the imputation. The sample size ranged from 27 to 32 as participants were more cooperative with some scales than others.

The usual conventions for paths was followed, with *a* for paths from condition to mediator, *b* for paths from mediator to outcome, *c* for total effect, *c′* for direct effect (that is, after adjustment for the mediators), and *ab* for the total indirect effect (through the mediators). Mediation analysis was conducted for the variables that were found above to have both a significant interaction with time effect and also for which the ACT+TAU condition improved significantly at posttreatment. Correlations between these variables are presented in Table 4.

First, potential mediators (AAQ-II, DERS Total, FFMQ Total, ACS Total) for overall BPD symptoms (BEST Composite) were investigated individually. The total effect of the ACT+TAU condition on BPD symptoms was significant, c = −14.65, $t(27) = -3.27$, $p = .003$, but the direct effect was not significant after accounting the AAQ-II, c′ = −5.48, $t(27) = -1.26$, $p = .219$; the DERS Total, c′ = −3.91, $t(27) = -.92$, $p = .365$; the FFMQ Total, c′ = −9.68, $t(26) = -2.02$, $p = .055$; or the ACS Total, c′ = −8.29, $t(25) = -1.56$, $p = .132$. The indirect effect, as assessed by the *ab* cross-product, was significant for the AAQ-II (point estimate = −9.56, 95% CI: -17.89, -2.78); the DERS Total (point estimate = −10.74; 95% CI: -20.11, -4.11); and the FFMQ Total (point estimate = −5.04; 95% CI: -12.31, -.31); but not for the ACS Total (point estimate = −4.96; 95% CI: -12.36, 1.62). Thus, the effects were mediated by the AAQ-II, DERS Total, and FFMQ Total, but not the ACS Total.

Table 4
Correlations

	BEST Composite	BHS	AAQ-II	DERS Total	FFMQ Total
BHS	.669**				
AAQ -II	−.718**	−.765**			
DERS Total	.759**	.751**	−.776**		
FFMQ Total	−.555**	−.615**	.672**	−.772**	
ACS Total	.520**	.460*	−.689**	.717**	−.738**

Note. BHS = Beck Hopelessness Scale; AAQ-II = Acceptance and Action Questionnaire–II; DERS = Difficulties in Emotion Regulation Scale; FFMQ = Five Factor Mindfulness Questionnaire; ACS = Affective Control Scale.
** 0.01 level (2-tailed).
* 0.05 level (2-tailed).

In order to examine the relative contribution of these mediators (AAQ-II, DERS Total, FFMQ Total) for overall BPD symptoms (BEST Composite), they were entered into a multiple mediation model. The total effect of the ACT+TAU condition on BPD symptoms was significant, c = −14.67, $t(26) = -3.17$, $p = .004$, and the direct effect was not, c′ = −2.07, $t(26) = -.46$, $p = .647$. Hence, the mediators together mediated the effect of the ACT+TAU condition on BPD symptoms. The total indirect effect through the three mediators was significant (point estimate = −13.04; 95% CI: -24.06, -4.16). The calculation of the indirect effects for each mediator revealed that only DERS Total was a significant mediator (point estimate = −29.39; 95% CI: -29.39, -2.21). That is, with DERS Total in the multiple mediation model, there were no significant additional contributions by the AAQ-II or FFMQ Total.

To further understand the contribution of DERS in the improvement of BPD symptoms for the ACT+TAU condition, a multiple mediation analysis was conducted using the DERS subscales (emotion nonacceptance, goal-directed difficulties, impulse dyscontrol, emotion nonawareness, lack of strategies, and lack of clarity). The total effect was significant, c = −14.65, $t(27) = -3.26$, $p = .003$, and the direct effect was not, c′ = .06, $t(27) = .01$, $p = .990$. The total indirect effect through the six mediators was significant (point estimate = −15.23; 95% CI: -24.96, -5.66). The only subscale that was a significant mediator was impulse dyscontrol (point estimate = −7.55; 95% CI: -16.34, -1.94). Emotion nonacceptance (point estimate = −1.83; 95% CI: -8.37, .84), goal-directed difficulties (point estimate = −1.82; 95% CI: -.73, 13.90), emotion nonawareness (point estimate = .30; 95% CI: -4.83, 6.75), lack of strategies (point estimate = −5.57; 95% CI: -17.26, 5.30), and lack of clarity (point estimate = −2.41; 95% CI: -11.87, 1.80) were all nonsignificant.

Potential mediators (AAQ-II, DERS Total, FFMQ Total, ACS Total) for hopelessness as measured by the BHS were also investigated individually. The total effect of the ACT+TAU condition on hopelessness was significant, $c=-7.04$, $t(27)=-3.66$, $p=.001$. The direct effect was not significant after accounting the AAQ-II, $c'=-3.12$, $t(27)=-1.92$, $p=.065$, or the DERS Total, $c'=-2.25$, $t(27)=-1.21$, $p=.237$. However, the direct effect was significant after accounting the FFMQ Total, $c'=-4.35$, $t(29)=-2.29$, $p=.030$, or the ACS Total, $c'=-5.02$, $t(28)=-2.15$, $p=.040$. The indirect effect as assessed by the *ab* cross-product was significant for the AAQ-II (point estimate=−3.91, 95% CI: -6.57, -1.45); the DERS Total (point estimate=−4.87; 95% CI: -8.40, -2.10); and the FFMQ Total (point estimate=−2.62; 95% CI: -5.19, -.18); but not for the ACS Total (point estimate=−1.73; 95% CI: -4.24, .59). Thus, the effects were mediated by the AAQ-II, DERS Total, and FFMQ Total, but not the ACS Total.

In the multiple mediation model (AAQ-II, DERS Total, FFMQ Total), the total effect of the ACT+TAU treatment on hopelessness was significant, $c=-6.84$, $t(29)=-3.48$, $p=.002$, and the direct effect was not, $c'=-1.41$, $t(29)=-.78$, $p=.443$. Hence, the mediators together mediated the effect of the ACT+TAU condition on hopelessness. The total indirect effect through the three mediators was significant (point estimate=−5.58; 95% CI: -9.37, -2.29). Both AAQ-II (point estimate=−1.98; 95% CI: -4.97, -.14) and DERS Total (point estimate=−3.60, 95% CI: -4.97, -.21) were significant mediators, while FFMQ Total was not (point estimate=.00, 95% CI: -2.22, 2.64). Thus, with AAQ-II and DERS Total in the multiple mediation model, there was no additional contribution by FFMQ Total.

The DERS subscales were investigated as mediators of improvement in hopelessness. The total effect was significant, $c=-7.04$, $t(30)=-3.66$, $p=.001$, and the direct effect was not, $c'=-1.56$, $t(27)=-.72$, $p=.475$. The total indirect effect through the six mediators was significant (point estimate=−5.89; 95% CI: -9.74, -1.09). The only subscale that was a significant mediator was lack of strategies (point estimate=−3.56; 95% CI: -7.66, -.06). Emotion nonacceptance (point estimate=−.03; 95% CI: -1.13, 1.35), goal-directed difficulties (point estimate=−.06; 95% CI: -4.84, .77), emotion nonawareness (point estimate=−2.24; 95% CI: -6.26, .04), impulse dyscontrol (point estimate=−1.32; 95% CI: -5.05, 2.20), and lack of clarity (point estimate=1.33; 95% CI: -.68, 4.09) were all nonsignificant.

Discussion

The results suggested that a brief 12-session ACT group may be a valuable addition to TAU for public mental health clients with symptoms of BPD. The ACT groups were well attended with few dropouts. The addition of the ACT group to TAU led to significantly better change than TAU alone for the following symptoms: overall BPD symptoms, BPD thoughts and feelings, BPD negative behaviors, and hopelessness. For each of these, there were significant and large improvements for the ACT+TAU condition. In contrast, participants in the TAU condition who received 3 months of TAU from local mental health and community services and general practitioners showed no significant changes on any of the outcome variables. There was also a significantly better change for the ACT+TAU condition on anxiety, due to a nonsignificant improvement in anxiety symptoms for the ACT+TAU condition, and a nonsignificant deterioration for the TAU condition. Almost a third (29%) of participants showed clinically significant change on overall BPD symptoms compared with none of the TAU condition.

There were not significantly better outcomes on the stress and depression subscales of the DASS despite significantly better outcomes in BPD thoughts and feelings (BEST subscale) and hopelessness (BHS). The DASS and the BPD thoughts and feelings subscale have different content. Three of the eight BPD thoughts and feelings items refer to major swings in mood, and the other items assess anger, feelings of emptiness, fears of abandonment, and other emotional states not mentioned in the DASS. The ACT+TAU intervention appears to have had a greater impact on BPD symptoms and hopelessness than on distress more broadly. This is perhaps not surprising given that ACT stresses pursuit of values based action and "taking your difficult thoughts and feelings with you" rather than reduction of distress as such.

The ACT+TAU treatment also produced significantly better change than TAU on the following ACT-related process variables: psychological flexibility (AAQ-II), emotion regulation skills (DERS), mindfulness (FFMQ), and fear of emotion (ACS). For each of these, there were statistically significant improvements with medium to large effect sizes for the ACT+TAU condition, which contrasted with no significant improvements on any of these measures for the TAU condition, consistent with the expectation that the ACT+TAU treatment would affect these processes while TAU would not.

Follow-up of the ACT+TAU participants showed that all improvements were maintained, except for the reduction in fear of emotion, which was no longer significantly different from baseline at follow-up. Anxiety (DASS) continued to improve, becoming significantly different from baseline by follow-up. However, follow-up numbers were small.

Of the ACT-related process variables measured in this study, psychological flexibility (AAQ-II), emotion skills (DERS), and mindfulness (FFMQ) were all mediators for BPD symptoms, providing support for the view that the observed improvements in BPD symptoms were associated with these processes. When they were entered into a multiple mediation model for BPD symptoms, only emotion skills (DERS) mediated. A separate mediation

analysis including only the subscales of the DERS suggested that less tendency to act in unhelpful ways in the presence of strong negative effect (low impulse dyscontrol) was the strongest contributor in the mediation. The definition of BPD includes considerable emphasis on self-destructive impulsive action, so the apparent importance of this subscale may in part reflect how the disorder is defined. From the point of view of ACT, a reduction in impulsive acts that are against the individual's values, and, conversely, increased action in a direction consistent with values would be regarded as important targets of therapy regardless of diagnostic category.

As expected, more positive scores on psychological flexibility (AAQ-II) and emotion skills (DERS) were also found to mediate a more subjective and less behavior-based outcome measure, namely hopelessness. Once again, when the two mediators were used in a multiple mediation model, only the DERS mediated. In the case of hopelessness, the strategies subscale of the DERS was found to be the strongest contributor in the mediation. Items in this subscale refer to confidence that strong emotions will pass rather than overwhelm one. Mindfulness skills (FFMQ) were not found to mediate hopelessness, and it may be that learning emotion acceptance skills is more important for reducing hopelessness than mindfulness training more generally.

Although there was a significant reduction in fear of emotions (ACS), this was not found to be a mediator of BPD symptoms or hopelessness. Scores on the ACS were strongly correlated with scores for psychological flexibility (AAQ-II) and emotion dysregulation (DERS) but less strongly with BPD symptoms (BEST) and hopelessness (BHS). Unlike the AAQ-II and the DERS, the ACS includes items measuring fear of positive emotions, and it may thus be tapping different processes. Also, fear of emotions differs somewhat from the postulated core ACT process, increased psychological flexibility, and it is possible that, at least in some cases, reduced BPD symptoms and/or reduced hopelessness were associated with increased psychological flexibility (reduced experiential avoidance), but not with reduced fear of emotions.

The study was a small trial, conducted in a standard public sector treatment setting, with as few exclusion criteria as possible in order to maximize applicability to a broad range of clinical settings and to "multiproblem" clients. However, it has a number of weaknesses and limitations. The trial was conducted using only 12 sessions of treatment, in order to avoid a period of longer than 12 weeks on a TAU waiting list. However, the ACT+TAU participants still suffered considerable disability and distress at the end of the 12 sessions of treatment and it is clear that a longer period of treatment is needed.

The ACT group was added to TAU for the research condition, without a placebo treatment for the TAU condition. It may be that the group alone without individual support may not be effective, or that the better results for ACT+TAU were a nonspecific result of the additional treatment hours. Also, the ACT groups were delivered by experienced staff who specialized in group treatment of people with severe personality disorders. It is possible that it was not the ACT content of the groups that resulted in the improvements, but rather access to specialist treatment, or access to a systematized treatment.

A further weakness is the small sample size of the study. Some of the outcomes, where differences between the conditions were not significant despite large effect sizes, may have reached significance given higher power from larger numbers. Another limitation was the numbers that were lost, particularly from the TAU condition and from the ACT+TAU condition at follow-up, despite efforts to retain contact. Although a mixed model analysis was used, the amount of data available for modeling was limited. Nonetheless, both the mixed model analysis and the repeated measures ANOVAs produced the same statistical conclusions, lending support for the robustness of the results.

The study was able to provide some preliminary data on ACT processes that may mediate changes in BPD symptoms and hopelessness. However, all measures were self-report and there is a need for a study including ratings by others or objective measures. The researchers gathered little information on several potentially important ACT process mediators: fusion with unhelpful thoughts, awareness of values, and committed (valued based) action. Inclusion of such measures in future studies may give a different picture of the ACT processes that are important for outcomes.

Notwithstanding these cautions, clinically significant change for clients in a public sector setting was obtained with a brief intervention. The intervention produced improvement for clients with high levels of initial symptoms, including depression, suicidality and hopelessness, and multiple diagnoses. The lack of improvement on any measure after 3 months of treatment for the participants on the waiting list, who were receiving only TAU, underlines the importance of developing supplementary treatments that can be delivered within the limited resources of the public sector.

Further research needs to be conducted to attempt to replicate the results obtained in this small sample, to compare the ACT group with other group treatments, and to ascertain whether outcomes are improved with longer treatment. There is also a need to explore whether the treatment can be effectively conducted by clinicians from outside a specialist service.

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