

A Randomized Controlled Trial of Acceptance and Commitment Therapy for
Clinical Perfectionism

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Abstract

Clinical perfectionism is characterized by imposing excessively high standards on oneself and experiencing severe distress when standards are not met. It has been found to contribute to the development and maintenance of various clinical presentations including anxiety, obsessive-compulsive, and eating disorders. The present study tested the efficacy of ten weekly individual sessions of acceptance and commitment therapy (ACT) relative to a waitlist control on clinical perfectionism and global outcomes among 53 individuals with clinical perfectionism. ACT is a process-based therapy that targets maladaptive underlying processes (e.g., rigid adherence to unrealistic high standards) rather than symptom topography (e.g., anxiety, depression). Participants completed assessments at pretreatment, posttreatment, and one-month follow-up. Results indicated compared to the waitlist condition, the ACT condition led to greater improvements in clinical perfectionism as well as outcomes related to wellbeing, functional impairment, distress, and processes of change. Our study suggests targeting core dysfunctional processes (i.e., clinical perfectionism) rather than symptom topography with treatments like ACT is feasible and efficacious, supporting a shift from symptom-focused to process-based care. We also note potential weaknesses in our treatment protocol and study methodology that should be addressed in future research. Study limitations included a small sample size and high dropout rate (35.7%).

Keywords: acceptance and commitment therapy, clinical perfectionism, randomized controlled trial, psychological inflexibility, self-compassion

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Perfectionism has been conceptualized as a multidimensional construct that entails striving for high standards and experiencing distress when these standards are not met (Shafran & Mansell, 2001). Perfectionism is not inherently problematic; it has adaptive and maladaptive qualities. Researchers have demonstrated evidence for a two-factor measure of perfectionism that includes maladaptive evaluative concerns and positive striving (Bieling, Israeli, & Antony, 2004). The maladaptive evaluative concerns factor was related to anxiety, depression, and distress whereas the positive striving factor was not, indicating perfectionistic traits that foster excellence and achievement can be adaptive and contribute to the wellbeing of individuals with perfectionistic qualities.

Maladaptive (clinical) perfectionism is defined by rigid adherence to unrealistic self-imposed standards that interferes with functioning and/or causes the individual significant distress (Shafran & Mansell, 2001). Clinical perfectionism is a risk and maintenance factor in a wide range of dysfunctional and pathological behaviors including anxiety, depression, obsessive-compulsive behavior, problematic eating behavior, self-harm, suicidal ideation, and general distress (Egan, Wade, & Shafran, 2011; Limburg, Watson, Hagger, & Egan, 2017). Because it is a process common across diagnostic labels (Egan et al., 2011), clinical perfectionism can be used to characterize a range of diagnoses and simplify case conceptualization by focusing on the function rather than the form of behaviors. Clinical perfectionism has also been shown to interfere with treatment of these problematic behaviors (Chik, Whittal, & O'Neill, 2008; Jacobs et al., 2009; Welch, Miller, Ghaderi, & Vaillancourt, 2009), underscoring the importance of

addressing clinical perfectionism even when it is not identified as the primary presenting concern.

Despite the important role clinical perfectionism appears to play in psychopathology and its treatment, few treatments identify clinical perfectionism as the primary intervention target. The most empirically supported intervention for clinical perfectionism is cognitive-behavioral therapy for clinical perfectionism (CBT-P). CBT-P generally attempts to change dysfunctional beliefs related to self-imposed standards through techniques like behavioral experiments and cognitive restructuring. CBT-P has produced clinically significant improvements in clinical perfectionism (Handley, Egan, Kane, & Rees, 2015; Riley, Lee, Cooper, Fairburn, & Shafran, 2007; Shafran et al., 2017; Steele et al., 2013), with a recent meta-analysis of eight studies finding medium to large pooled effect sizes for improvements in measures of clinical perfectionism (Lloyd, Schmidt, Khondoker, & Tchanturia, 2015). Despite empirical support for symptomatic improvement following CBT-P, there remains limited understanding of how other indices of outcome like functioning and wellbeing are impacted by these interventions. Given that absence of psychopathology does not necessarily reflect presence of positive mental health (Keyes, 2005), it is important for outcome studies to test if improvement in symptoms are also accompanied by gains in psychological wellbeing. Furthermore, another limitation of the extant literature is only procedures from a traditional cognitive-behavioral perspective have been tested, precluding examination of other therapeutic methods that may be helpful to consider in treatment. Identifying alternative therapeutic procedures provides clinicians with more options for treatment delivery.

Targeting the function or effect of maladaptive processes rather than their content provides an alternative approach to treating clinical perfectionism. In this iteration of

intervention, therapy is aimed at process-based patterns (e.g., avoidance of perceived failure) and skills taught tend to address those underlying patterns. Acceptance and commitment therapy (ACT; Hayes, Strosahl, & Wilson, 2011) is a modern cognitive-behavioral therapy grounded in contextual behavioral science and influenced by acceptance and mindfulness principles. ACT is a process-based or functional psychotherapy that relies heavily on identification of underlying processes for case conceptualization (Hayes, Luoma, Bond, Masuda, & Lillis, 2006; Hayes et al., 2011). The ultimate goal of ACT is to enhance valued living and not to reduce symptoms per se. As such, theoretically consistent outcomes in ACT trials include indices of wellbeing like values-consistent behaviors (valued action), quality of life, life satisfaction, and overall functioning (Hayes et al., 2011).

From an ACT perspective, clinical perfectionism is conceptualized as unhelpful (typically avoidant) responses to unwanted inner experiences (e.g., procrastinating to avoid feeling overwhelmed, overworking to dispel thoughts like “I’m not good enough”) and overregulation of behavior by rules (e.g., “I should be getting straight As,” “I should please my parents”). ACT has the potential to influence perfectionistic behavioral patterns with a unique perspective on how to address “dysfunctional” perfectionistic verbal processes (e.g., thoughts, rules, feelings). From an ACT framework, such thoughts—or inner experiences more broadly—have no inherent power to affect behavior and do not need to be altered. Thus, ACT focuses on changing the effect of the perfectionistic thought on behavior without necessarily changing the content of the thought.

In contrast, CBT-P posits a different maladaptive process and means of addressing the target process: CBT-P identifies dichotomous thinking as a critical mediator between perfectionism and psychopathology and focuses on changing the content of the thought to reduce

its influence on behavior (Egan et al., 2014; Hofmann & Asmundson, 2008). At the same time, we note CBT-P indirectly addresses avoidance through use of behavioral experiments—necessitating contact with previously avoided stimuli—but with the goal of challenging irrational thoughts and aligning them more closely with reality (Egan et al., 2014; Hofmann & Asmundson, 2008).

Conversely, ACT works to build skills that undermine the perceived “causal” relationship between inner events and behavior so individuals can allow inner experiences to be present as they are while still engaging in personally meaningful behavior. The ability to do so is termed psychological flexibility—the key mechanism of change in ACT (Hayes et al., 2006). Given the critical role psychological flexibility is hypothesized to play in ACT, testing if ACT actually shifts psychological flexibility provides an important test of theory. If ACT produces improvements in outcome without moving psychological flexibility, then the theoretical model on which ACT is based needs to be revised. Although this is not a sufficient test of theory as ACT may simultaneously shift other processes of change (e.g., cognitive change) that ultimately influence outcomes, establishing that ACT shifts its hypothesized process of change would provide at least preliminary support for the theory underlying ACT.

Psychological inflexibility has been found to mediate the relationship between maladaptive perfectionism and depression as well as anxiety in cross-sectional and longitudinal investigations (Moroz & Dunkley, 2015, 2019), suggesting inflexible responding to perfectionistic internal experiences (e.g., self-critical thoughts) may explain how maladaptive perfectionism is linked to psychological symptoms. Specifically, these findings suggest more engagement in inflexible responding to perfectionism-related stimuli increases depression and anxiety over time (Moroz & Dunkley, 2019), supporting the hypothesized paradoxical effect of

attempts to regulate distress (i.e., attempts to control distress tend to exacerbate it; Hayes, Wilson, Gifford, Follette, & Strosahl, 1996). Given ACT targets psychologically inflexible responding, it should lead to reductions in distress among individuals with clinical perfectionism—even though the explicit goal of ACT is to increase valued living.

Psychological inflexibility has also been associated with problematic behaviors related to clinical perfectionism such as eating disorders, obsessive-compulsive and related disorders, depression, and anxiety disorders (A-Tjak et al., 2015; Powers, Zum Vorde Sive Vording, & Emmelkamp, 2009), further suggesting clinical perfectionism may be treated by improving psychological flexibility. Other support for this hypothesis comes from clinical trials demonstrating positive outcomes from ACT for multiple behavioral problems related to clinical perfectionism, including obsessive-compulsive disorder (OCD; Twohig et al., 2018; Twohig et al., 2010), trichotillomania (Lee et al., 2018), anxiety and depression (Arch et al., 2012; Forman, Herbert, Moitra, Yeomans, & Geller, 2007), and problematic eating (Juarascio, Forman, & Herbert, 2010). However, ACT has not been specifically tested as a treatment for clinical perfectionism.

The aim of the current study was to investigate the potential efficacy of ACT as a treatment for clinical perfectionism using a randomized controlled trial of ACT versus a waitlist control. We predicted: (1) levels of clinical perfectionism would significantly decrease from pretreatment to follow-up in the ACT condition compared to the waitlist control condition; (2) valued action, quality of life, and symptom distress/functional impairment would significantly improve from pretreatment to follow-up in the ACT condition compared to the waitlist control condition; (3) psychological inflexibility would significantly decrease from pretreatment to

follow-up in the ACT condition compared to the waitlist control condition; and (4) participants in the ACT condition would give high treatment acceptability ratings.

Method

Participants

Participants were recruited from a western U.S. town using newspaper advertisements, flyers posted in the community and on the local university campus, and announcements in university classes. Recruitment materials specified intervention targets as “procrastination, spending a lot of time planning/organizing, and difficulty starting/completing tasks because you need to get them exactly right.” Inclusion criteria were: (1) score of at least five on the Dimensional Obsessive-Compulsive Scale (DOCS) Symmetry subscale as an indicator of elevated clinical perfectionism (Abramowitz et al., 2010), (2) reported significant distress and/or functional impairment associated with clinical perfectionism based on a clinical interview, (3) willingness to complete ten sessions of therapy, (4) cognitively and physically able to complete intervention and assessments, (5) not currently seeking therapy for clinical perfectionism, and (6) no change in psychotropic medication in the past 30 days.

Procedures

Procedures were reviewed and approved by a university institutional review board. Individuals interested in the study completed screening online (criterion 1) and over the phone (criteria 3-6) to ascertain they met initial eligibility criteria. Those eligible for the study were scheduled for a baseline assessment during which criterion 2 was evaluated. Prior to the baseline assessment, participants reviewed and signed an informed consent form. After the baseline assessment was completed and study eligibility was confirmed, participants were randomly assigned to the treatment or waitlist condition using a random number table with an equal

number of odd and even numbers representing each treatment condition. This was done to ensure roughly equivalent group sizes. The researcher responsible for random assignment was unaware of the condition to which participants would be assigned until the actual assignment was conducted.

Participants in the treatment condition received ten weekly sessions of ACT and participants in the waitlist condition were on a 14-week waitlist. Study assessments were conducted at pretreatment, each session, posttreatment (10 weeks after pretreatment), and one-month follow-up. Participants completed self-report measures at all assessment points and functional near-infrared spectroscopy neuroimaging at pretreatment and posttreatment. Neuroimaging and session data were not included in this report. The waitlist group was offered ten sessions of ACT after follow-up data were collected. Students in eligible classes received research course credit for their participation in the study. Figure 1 provides an illustration of participant flow throughout the study.

Intervention

Treatment consisted of ten weekly 50-minute sessions of ACT. The first session covered limits to confidentiality, informed consent (orientation to therapy), and information gathering. The second session focused on creative hopelessness. Sessions 3 and 4 were on acceptance/willing, 5 and 6 on defusion, and 7 and 8 on values and committed action. The final two sessions reviewed skills learned and discussed maintenance of gains and relapse prevention. Sessions were conducted by a clinical psychologist who has been licensed for more than 10 years or one of two graduate students who were supervised by the psychologist on a weekly basis. Sessions were recorded to evaluate treatment integrity.

The study treatment manual was based on an ACT protocol for OCD (Twohig et al., 2010). Because ACT is a process-based therapy, much of the manual adaptation entailed replacing the distressing internal experience of obsessions in OCD with experiences relevant to participants' perfectionistic presentation such as fear of failure and a perceived need to be "perfect." In addition, other considerations were detailed for features specific to clinical perfectionism. First, individuals struggling with clinical perfectionism may not exhibit significant functional impairment. That is, they may still be able to complete tasks at work/school and maintain satisfactory interpersonal relationships. However, they may experience significant psychological distress in the form of worry, anxiety, rumination, and self-critical thoughts and may be acting in accordance with rules that do not align with their values. Furthermore, even if they are highly functional, their pattern of behavior may not be sustainable or enjoyable over time. Second, because there is a distinction between adaptive and maladaptive perfectionism, treatment needed to focus on the maladaptive aspects of perfectionism and not perfectionism in general. For example, having high standards per se may be adaptive, but the cognitive and behavioral rigidity with which one regards those standards (e.g., "If I don't get an A, I'm a failure") may not be. Furthermore, the function of the behavior—not its topography—defines whether it is adaptive. For instance, completing homework to avoid feelings of inadequacy is likely less adaptive than doing so to approach a value of learning. This makes training awareness of the function of behavior a critical component of ACT for clinical perfectionism. Third, perfectionism is typically ego-syntonic and individuals may show resistance to changing what they view as a dimension of their personality. From an ACT perspective, fusion with perfectionism that interferes with valued living is viewed as a form of

self-as-content (as opposed to self-as-context). Hence, one potential component of treatment was to practice holding this aspect of identity “more lightly” in the service of values.

Measures

Screening measure.

Dimensional Obsessive-Compulsive Scale (DOCS)—Symmetry (Abramowitz et al., 2010). This five-item subscale assesses severity of avoidance, distress, and interference due to a perceived need to make things “just right” (Abramowitz et al., 2010). Examples of this type of avoidance and/or distress include a perceived need for “symmetry, evenness, balanced, or exactness” and behavioral repetition to obtain a feeling of being “just right” or “balanced.” Given the overlap between rigid pursuit of a sense of “just right” in the DOCS Symmetry subscale and the behavioral inflexibility around arbitrarily imposed standards in clinical perfectionism, we used the DOCS Symmetry subscale to screen for clinical perfectionism in the current study. Each item is scored from 0 to 4 with higher scores indicating higher severity (Abramowitz et al., 2010). Individuals who scored at least five (just below the mean of 6.13 [SD = 5.50] in an OCD sample; Abramowitz et al., 2010) were assessed further for eligibility. A lower screening cutoff was selected to err on the side of over-including potential participants for further eligibility assessment. The symmetry subscale has shown good to excellent internal consistency in both clinical and unscreened samples and good convergent, divergent and criterion validity (Abramowitz et al., 2010).

Baseline measures.

Demographics. Participants were asked a series of demographic questions, including items on gender, race, ethnicity, and socioeconomic status.

Structured Clinical Interview for DSM-5 (SCID-5; First, Williams, Karg, & Spitzer., 2016). The SCID-5 is a semi-structured interview used to assess DSM-5 diagnoses, including mood and anxiety disorders, psychotic disorders, and substance use disorders. In the current study, we administered a truncated version of the SCID-5 focusing on diagnoses related to clinical perfectionism: social anxiety disorder, generalized anxiety disorder (GAD), OCD, hoarding disorder, body dysmorphic disorder, trichotillomania, excoriation disorder, anorexia nervosa, bulimia nervosa, binge-eating disorder, and obsessive-compulsive personality disorder (OCPD). Diagnostic interviews were conducted by trained research assistants and diagnoses were assigned in accordance with DSM-5 criteria.

Outcome measures.

Frost Multidimensional Perfectionism Scale (FMPS; Frost, Marten, Lahart, & Rosenblate, 1990). The FMPS includes six subscales. However, for the present study only the most clinically relevant three subscales indicative of maladaptive perfectionism were analyzed: Concern Over Mistakes (9 items), Doubts About Actions (4 items), and Personal Standards (7 items). Previous treatment trials for clinical perfectionism also used these subscales to evaluate outcomes (e.g., Egan et al., 2014; Handley et al., 2015; Riley et al., 2007). The Concern Over Mistakes subscale assesses unhelpful responses to mistakes and viewing mistakes as personal failure, Doubts About Actions evaluates doubts about personal competence, and Personal Standards reflects setting high personal standards and basing self-evaluation on ability to meet these standards. We analyzed Personal Standards in this study to provide a comparison to previous trials although we note that this subscale appears to be less sensitive to treatment effects (Egan et al., 2014; Handley et al., 2015) and has been linked to healthy perfectionism (Bieling et al., 2004; Stoeber & Otto, 2006). Each item is scored from 1 to 5 with higher scores indicating

more maladaptive perfectionism. This measure has shown construct validity and adequate internal consistency (Frost et al., 1990). In our sample, internal consistency was good to excellent across the three subscales; Cronbach's α s ranged from .85 to .94.

Outcome Questionnaire-45.2 (OQ-45; Lambert et al., 1996). The OQ-45 is a 45-item measure of symptom distress and functional impairment (Lambert et al., 1996). Each item is scored from 0 to 4 and higher scores indicate greater distress and/or impairment (Lambert et al., 1996). The full measure has excellent internal consistency and good temporal stability and convergent validity (Lambert et al., 1996). Internal consistency was excellent in the present sample ($\alpha = .94$).

Quality of Life Scale (QOLS; Burckhardt & Anderson, 2003; Flanagan, 1978). The revised 16-item version of the QOLS (Burckhardt & Anderson, 2003) was used in the present study to assess overall satisfaction with quality of life. Each item is rated from 1 to 7 with higher scores indicating greater quality of life (Burckhardt & Anderson, 2003). The QOLS has demonstrated reliability and convergent and divergent validity (Burckhardt & Anderson, 2003). In the present study, internal consistency was good ($\alpha = .89$).

Valuing Questionnaire (VQ)—Progress (Smout, Davies, Burns, & Christie, 2014). The 5-item Progress subscale was used in the current study to assess progress toward personal values. Items are rated from 0 to 6; higher scores indicate more valued action (Smout et al., 2014). The Progress subscale has demonstrated convergent and incremental validity as well as good internal consistency in past research (Smout et al., 2014). Internal consistency was good in this study ($\alpha = .81$).

Process measures.

Acceptance and Action Questionnaire —II (AAQ-II; Bond et al., 2011). The AAQ-II is a seven-item measure of psychological inflexibility, the process wherein individuals disengage from actions in line with personal values due to disconnection from the present moment and/or ineffective attempts to control thoughts and feelings (Bond et al., 2011). Each item is scored from 1 to 7. Higher scores indicate higher psychological inflexibility. The AAQ-II has demonstrated adequate reliability and validity in both clinical and unscreened samples (Bond et al., 2011) and is sensitive to treatment (e.g., Fledderus, Bohlmeijer, Pieterse, & Schreurs, 2012). In the current study internal consistency was excellent ($\alpha = .92$).

Self-Compassion Scale (SCS; Neff, 2003). The SCS is a 26-item measure of self-compassion. Each item is scored from 1 to 5. A total sum score is calculated from items assessing three components of self-compassion (i.e., mindfulness, self-kindness, and common humanity) as well as reverse-scored items that measure their inverse (i.e., over-identification, self-judgment, and isolation). The scale has excellent internal consistency and strong evidence of convergent and divergent validity (Neff, 2003). Internal consistency was excellent in our sample ($\alpha = .95$).

Treatment Acceptability

Treatment Evaluation Inventory—Short Form (TEI-SF; Kelley, Heffer, Gresham, & Elliot, 1989). The TEI-SF is a nine-item measure of the degree to which clients find a psychological intervention acceptable (Kelley et al., 1989). The present study used a seven-item version of the TEI-SF; items were revised and two were omitted due to irrelevance to an adult sample. Each item is scored from 1 to 5; higher scores indicate greater treatment acceptability (Kelley et al., 1989). The measure has good internal consistency and has been found to detect

differences between treatments in previous research (Kelley et al., 1989). Internal consistency was good in our sample ($\alpha = .80$).

Treatment Adherence

A fifth of all possible therapy sessions ($n = 38$) from the 19 participants who attended at least five sessions were randomly selected to be coded for treatment adherence (Plumb & Vilardaga, 2010). Sessions from one participant who completed five sessions were excluded due to irretrievable data (broken disc). Selection was balanced within and across participants such that two sessions from each participant and at least three of each therapy session were coded to ensure fair representation of participants over the course of treatment. Treatment adherence was scored based on a standardized coding system used in previously published ACT randomized controlled trials (e.g., Crosby & Twohig, 2016; Twohig et al., 2010).

Raters were trained research assistants who coded at least nine sessions with an experienced graduate student who had used the current adherence coding system in previous clinical trials. After each session, raters discussed scores assigned and discrepancies were discussed to increase consistency between raters. Raters also watched at least one therapy session together and coded the session simultaneously to clarify definition of constructs and use of the coding scheme. ICCs ranged from .83 to 1.00 for Rater 1 and .79 to 1.00 for Rater 2. By the end of the training period, both raters received at least two consecutive ICCs $> .90$. The remaining sessions were independently coded by the two trained raters.

ACT-congruent and ACT-incongruent processes were coded for quality and quantity on a five-point scale (1 = the process was never explicitly covered, 2 = the process occurred at least once and not in an in-depth manner, 3 = the process occurred several times and was covered at least once in a moderately in-depth manner, 4 = the process occurred with relatively high

frequency and was addressed in a moderately in-depth manner, 5 = the process occurred with high frequency and was covered in a very in-depth manner). ACT-congruent processes included acceptance, defusion, contact with the present moment, self-as-context, committed action, and values. ACT-inconsistent processes included cognitive restructuring, attribution of causal power to internal experiences, and control/avoidance strategies. In addition, raters provided overall ratings for adherence to the ACT model and general quality of therapy.

Data and Statistical Analyses

Data were collected from participants who were willing to complete pretreatment, posttreatment, and follow-up assessments, including those who did not attend all ten sessions of therapy. All participants assigned to a study condition were included in analyses. Calculation of sample size was based on previous clinical trials on perfectionism that reported significant effects (e.g., Egan et al., 2014; Riley et al., 2007) due to insufficient information on parameters (e.g., intra-individual correlations) required to conduct a priori power analyses for multilevel modeling. Use of multilevel models permitted inclusion of all data from this intent-to-treat sample irrespective of missing data at posttreatment or follow up. Therefore, no data imputation methods were used. Statistical analyses were conducted with R in RStudio (R Core Team, 2015; RStudio Team, 2015) using the following packages: tidyverse (Wickham, 2017), lme4 (Bates, Maechler, Bolker, & Walker, 2015), effsize (Torchiano, 2017), and texreg (Leifeld, 2013).

Between-group comparisons (t -test or χ^2 test) were used to evaluate differences between ACT and waitlist participants at pretreatment as well as between treatment completers and dropouts. Participants who did not complete at least six sessions of treatment were considered dropouts.

Linear mixed effects models were used to examine the effect of the intervention condition on outcomes over time. A series of nested models were specified for each outcome of interest: FMPS-CM, FMPS-PS, FMPS-DA, OQ-45, QOLS, VQ Progress, AAQ-II, and SCS. All models included random intercepts for individuals. For all outcomes, the first model only included time, where time was measured in three discrete values (i.e., pretreatment, posttreatment, and follow-up). The second model added the condition as a main effect. In the third and final model, the interaction between time and condition was tested. These models were compared in terms of fit using a χ^2 difference test based on the likelihood function. Only coefficients from the best-fitting model were interpreted. Final models were estimated using the maximum likelihood criterion. All coefficient *p*-values reported are based on the Satterthwaite approximation to degrees of freedom.

Clinically Significant and Reliable Change

Three different indices of change were used to categorize participants at posttreatment and one-month follow-up (see Table 4).

Clinically significant change. Clinically significant change was operationalized as having scores fall within functional range at posttreatment (i.e., one standard deviation from a normative mean; Shafran et al., 2017). This is a stricter criterion than that of two standard deviations within a normative mean proposed by Jacobson and Truax (1991). For these analyses, we only examined the primary (most clinically relevant) variable in each domain of interest—clinical perfectionism (FMPS-CM), overall clinical severity (OQ-45), and wellbeing (QOLS). The healthy cutoff was < 26 for FMPS-CM (Frost & Steketee, 1997), < 66 for OQ-45 (Lambert et al., 1996), and > 71 for QOLS (Langeland, Wahl, Kristoffersen, Nortvedt, & Hanestad, 2007).

Reliable change index. We also calculated a reliable change index (RCI)—the difference between pretreatment and posttreatment scores and between pretreatment and follow-up scores divided by the standard error of the difference between the two scores (Jacobson & Truax, 1991). An RCI greater than 1.96 suggests real change rather than change due to random error (Jacobson & Truax, 1991). Whereas clinically significant change measures proximity to normative functioning, the reliable change index provides a measure of the magnitude of change over the course of treatment (Jacobson & Truax, 1991).

Recovery status. Participants were classified as “recovered” if they met criteria for both clinically significant and reliable change (i.e., fell within normative range and showed real change), “improved” if they showed positive reliable change but did not end up in the normative range, and “deteriorated” if they showed negative reliable change regardless of whether they ended up in the normative range; participants who did not show reliable change were considered “unchanged” (Egan et al., 2014).

Results

Sample Descriptives

Mean age of the sample was 25.4 years ($SD = 12.3$). The majority of participants identified as female (74%), European American (85%), single (74%), and members of The Church of Jesus Christ of Latter-day Saints (79%; see Table 1 for details). The most common DSM-5 diagnoses assigned were OCPD, GAD, and OCD. There were no significant differences between groups on demographic, outcome, or process variables at pretreatment (see Table 1). There were significantly more participants diagnosed with GAD in the ACT condition than in the waitlist condition ($p = .043$). Baseline FMPS subscale scores in the current study were

comparable to those reported in previous clinical trials (e.g., Egan et al., 2014; Rozental et al., 2017; Shafran et al., 2017), suggesting eligibility screening methods yielded a clinical sample.

Treatment Dropout

Treatment dropout rate was high (35.7%) in the current study. Post hoc *t*-test analyses revealed no significant differences between completers and dropouts on primary outcome variables. However, the direction of between-group differences indicated participants who dropped out of treatment generally had higher mean scores of maladaptive perfectionism and symptom distress and lower mean scores on quality of life: FMPS-CM ($M_{\text{completer}} = 32.1$, $M_{\text{dropout}} = 35.4$, $p = .305$), FMPS-DA ($M_{\text{completer}} = 14.9$, $M_{\text{dropout}} = 16.9$, $p = .139$), OQ-45 ($M_{\text{completer}} = 75.5$, $M_{\text{dropout}} = 89.2$, $p = .106$), and QOLS ($M_{\text{completer}} = 78.5$, $M_{\text{dropout}} = 68.9$, $p = .177$).

Treatment Acceptability

The TEI-SF was only administered to participants in the ACT condition at the second session to avoid the confounding effect of treatment efficacy. The mean total score was 25.9 (SD = 3.3) out of a total possible score of 35, indicating moderately high treatment acceptability.

Treatment Adherence

Mean ratings for ACT processes were as follows: acceptance = 3.29 (SD = 1.16), defusion = 2.76 (SD = 1.13), present moment awareness = 1.58 (SD = 0.60), self-as-context = 1.16 (SD = 0.44), committed action = 2.76 (SD = 0.63), and values = 2.79 (SD = 0.96). This suggests treatment focused most heavily on acceptance, defusion, values, and committed action and these processes were covered several times in an in-depth manner. Mean scores for cognitive restructuring, attribution of causal power to internal experiences, and control/avoidance strategies were 1.00 (SD = 0), 1.03 (SD = 0.16), and 1.00 (SD = 0) respectively, indicating occurrence of ACT-inconsistent processes was extremely rare. The mean rating for adherence to

the ACT model was 4.68 (SD = 0.47) and that for overall therapist quality was 5.00 (SD = 0).

These results suggest therapy in the present study was conducted in an ACT-consistent fashion and of excellent quality.

Outcomes of Interest

Means, standard deviations, and effect sizes for outcomes over time are presented in Table 2.

Clinical Perfectionism (FMPS). Two of the three FMPS subscales showed a significant interaction between condition and time: FMPS-CM and FMPS-DA. For FMPS-CM, the conditions more strongly differed at posttreatment and follow-up ($p < .001$; see Table 3). That is, as shown in Figure 2 Panel A, there was a greater decrease in scores in the ACT condition over time compared to the waitlist condition in which scores remained relatively constant. For FMPS-DA, there were lower scores in the ACT condition compared to the waitlist condition at posttreatment ($p = .006$) but not at one-month follow-up (see Figure 2 Panel B). Conversely, the best-fitting model for FMPS-PS only included time as a main effect; coefficients reflected a significant decrease in scores from pretreatment to follow-up—but not from pretreatment to posttreatment—across groups ($p = .002$; see Figure 2 Panel C).

Symptom distress and functional impairment (OQ-45). The condition by time interaction was significant at both posttreatment and follow-up ($p = .006$ and $p = .005$ respectively), suggesting that the decrease in self-reported distress and impairment in the ACT condition was maintained over time and greater than that in the waitlist condition (see Figure 2 Panel D).

Progress toward values (VQ). The interaction effect of time and condition was significant at posttreatment and follow-up ($p < .001$ and $p = .011$ respectively), with higher

scores for valued action observed in the ACT condition at both timepoints (see Figure 2 Panel E).

Quality of life (QOLS). The interaction effect of time and condition was significant at posttreatment and follow-up ($p = .016$ and $p < .001$ respectively), with higher self-reported quality of life in the ACT condition at posttreatment and follow-up compared to the waitlist condition (see Figure 2 Panel F).

Psychological inflexibility. The interaction effect of time and condition was significant at posttreatment and follow-up ($p = .009$ and $p = .001$ respectively). Self-reported psychological inflexibility significantly decreased in the ACT condition relative to the waitlist condition at posttreatment and follow-up (see Figure 2 Panel G).

Self-compassion. The interaction between time and condition was significant for SCS scores at posttreatment and follow-up ($p < .001$ and $p = .002$ respectively), with the ACT condition showing greater self-reported self-compassion at both timepoints relative to the waitlist condition (see Figure 2 Panel H).

Clinically Significant and Reliable Change

Posttreatment. χ^2 tests indicated no significant between-group differences at posttreatment in the proportion of participants who demonstrated clinically significant change, reliable change, or overall improvement for FMPS-CM and OQ-45 (see Table 4). A higher proportion of participants in the ACT condition experienced clinically significant change in quality of life compared to the waitlist condition (89% vs. 58%; $p = .034$). For concern over mistakes, 45% in the ACT condition showed clinically significant change, 65% showed reliable improvement, and 35% were considered recovered. These figures were 67%, 77%, and 53% respectively for distress and impairment, and 89%, 65%, and 59% respectively for quality of life.

One-month follow-up. There were significant between-group differences for reliable change ($p = .012$) and recovery status ($p = .030$) for the FMPS-CM, clinically significant change for the OQ-45 ($p = .010$), and reliable change for the QOLS ($p = .025$; see Table 4 for details). Between-group differences tended to indicate both a higher proportion of ACT participants showing positive change and a smaller proportion of ACT participants showing no change or worsening of outcomes compared to waitlist participants at follow-up. For concern over mistakes, 50% in the ACT condition showed clinically significant change, 56% showed reliable improvement, and 44% were attained recovered status. These figures were 88%, 69%, and 63% respectively for distress and impairment, and 88%, 63%, and 56% respectively for quality of life.

Discussion

Our findings indicate ACT was superior to a waitlist control condition on clinical perfectionism, psychological functioning, and processes of change from pretreatment to follow-up. Within-group improvement over time was significant for all outcomes, further supporting the efficacy of ACT with respect to clinical perfectionism and global outcomes. In addition, the observed effect sizes are comparable to those obtained from CBT treatment trials for clinical perfectionism (Egan et al., 2014; Handley et al., 2015). For example, a previous waitlist-controlled trial for individual CBT-P reported between-group posttreatment Hedges' g s ranging from 0.49 to 1.16 for FMPS scales (Riley et al., 2007); corresponding effect sizes in the present study ranged from 0.42 to 1.05.

Our results indicate ACT—as administered in the present study—may be similarly efficacious to CBT for clinical perfectionism based on comparisons of observed effect sizes and more efficacious than a waitlist condition on the most clinically relevant outcomes tested. Not only are these findings consistent with previous research that has found ACT to be effective in

treating related concerns like OCD (Twohig et al., 2010), mixed anxiety disorders (Arch et al., 2012), and social anxiety (Craske et al., 2014), they also suggest ACT may be a viable treatment option for individuals struggling with clinical perfectionism more globally. Future research could clarify how the efficacy of ACT compares to CBT-P in the same trial and identify moderators of treatment response. Such findings would provide insight into the replicability of our findings and empirical guidance for clinical decision making regarding which treatment to use for clinical perfectionism. In addition, testing the efficacy of ACT for other overarching maladaptive processes (e.g., rumination) may be warranted. Results from these studies could be used to facilitate distillation of ACT protocols to their core function-oriented components and streamline therapeutic practice. Furthermore, given the role of clinical perfectionism as a risk and maintenance factor in various presentations (Egan et al., 2011), it would also be prudent to examine if reductions in perfectionism specifically predict decreases in psychopathology and functional outcomes to provide further evidence supporting clinical perfectionism as a generalized maladaptive process.

More broadly, present findings provide evidence that a process-based approach—ACT in this case—can be useful for treating topographically diverse behavioral patterns that share a common function (e.g., avoidance of feelings of inadequacy). The present study represents a foray into the field of process-based care, which advocates a shift in focus from symptoms to malleable processes of change that cohere across levels of analysis, scientific disciplines, and worldviews in order to create more integrated evidence-based models of treatment (Hayes & Hofmann, 2017). By focusing our research and clinical efforts on mutable mechanisms of change, we can facilitate the development of more parsimonious interventions designed to address a wide range of formally distinct presentations by distilling them to core functional

processes. Such a transition may increase the efficiency of clinical training and psychological interventions, decreasing therapeutic burden on providers and clients and enhancing the availability of mental health resources (Hofmann & Hayes, 2018).

At the same time, we note that although doubting of actions did not significantly differ between groups at follow-up (Hedges' $g = -0.41$), the ACT group reported significantly less doubting of actions at posttreatment (Hedges' $g = -0.74$). The small change in personal standards observed is also congruent with results from previous treatment trials (Egan et al., 2014; Handley et al., 2015) and lack of significant group differences (Hedges' $g = -0.50$ at posttreatment and -0.36 at follow-up) could have been due to the slight decrease in the waitlist condition at follow-up (see Figure 2 Panel C). The relatively small magnitude of change in personal standards is not unexpected from an ACT perspective. Given ACT therapists are concerned about the function of private events—including rules—rather than their frequency or content, it follows that a rule does not need to change for responses to it to change. In other words, participants could still have held high standards for themselves while practicing more flexible and adaptive responses to these rules. This interpretation is supported by the observed improvement in distress and impairment, quality of life, and psychological inflexibility in the ACT condition over time. Moreover, having high personal standards has been consistently linked to adaptive or healthy perfectionism (Bieling et al., 2004; Stoeber & Otto, 2006) so they may not need to change for individuals to live a meaningful life.

In addition, gains in valued action at posttreatment were not maintained at follow-up. One reason for this could be valued behaviors are more situationally dependent than other indices of wellbeing, such as quality of life and self-compassion, and therefore more difficult to maintain. External barriers (e.g., being physically ill, being given a sudden work deadline) can

readily impede one's ability to engage in specific actions. At the same time, external barriers are often tied to difficult inner experiences (e.g., rushing to meet a deadline to satisfy a perceived need to please others) and the capacity to persist in meaningful behavior in the presence of these inner experiences is a critical piece of psychological flexibility. Thus, future iterations of ACT for clinical perfectionism may need to emphasize behavioral maintenance more in therapy to increase the likelihood of sustained valued action.

Limitations

Our results should be interpreted in the context of study limitations. First, our sample size was small. Use of multilevel analyses permitted use of all available data, minimizing issues with power and biases from study attrition, but error variability could still have obscured treatment effects, resulting in Type II error.

Second, data were not collected from waitlist participants who chose to receive the intervention, which would have added power to within-group analyses. The reason for this decision was we did not believe the data collected from these participants for within-group analyses (between-group comparisons would have been inappropriate given groups would not have been independent) justified the additional burden placed on participants who had already completed one round of research assessment and who had been on a 14-week waitlist.

Third, reliability analyses were not conducted for the screening measure used in the current study as screening data were collected prior to study enrollment. Thus, we were unable to ascertain the appropriateness of the DOCS Symmetry subscale for determining clinical status of our perfectionism sample. However, study eligibility was primarily evaluated using a clinical interview by a trained assessor and baseline perfectionism scores observed in our sample were

similar to those reported in previous clinical trials on perfectionism, indicating we obtained a sample with clinically significant levels of perfectionism.

Fourth, our sample was homogenous (mostly White, college-aged, single, and LDS) and unrepresentative of population demographics, compromising generalizability of our findings. Furthermore, it is unclear if underlying processes necessarily replicate across dimensions of identity. It is possible marginalized individuals with a different set of contingencies in their history and current environment may have an alternative function for formally perfectionistic behaviors. If so, treatment would need to target that key function and the present protocol might not be applicable to these groups. For example, striving for high standards might be a response to consistent external doubts about personal abilities based on stereotypes rather than discomfort related to perceived failure and treatment may focus on empowerment and increased awareness of systemic oppression rather than clinical perfectionism per se.

Fifth, although there are arguably advantages to using a waitlist control for initial pilot research evaluating new therapy applications (e.g., increasing power with smaller samples, reducing false negatives in early exploration; Gold et al., 2017), the waitlist condition did not rule out a variety of alternate method and common factors that might have accounted for treatment effects observed in this study (e.g., placebo and demand characteristics).

Sixth, dropout rate in our study was relatively high (35.7%) compared to those in previous perfectionism trials (10% to 22.2%; Egan et al., 2014; Riley et al., 2007) as well as the average dropout rate in ACT of 15.8% (Ong, Lee, & Twohig, 2018). There were several possible reasons for this. The additional incentive of course credit might have resulted in dropout once students received a sufficient number of credits. Anecdotally, therapists noted a high level of disengagement and subsequent dropout following awarding of credit for completion of the

baseline assessment and early therapy sessions. Therapists also observed aspects of perfectionism (e.g., rigidity, avoidance) could have led to premature termination. For example, a few participants noted they were too busy with work to continue therapy. At the same time, the discrepancy between present dropout rate and that in other trials indicates high dropout is not unique to clinical perfectionism and dropout could have been lower in our sample. Therapists using a similar treatment may need to attend to factors contributing to dropout and explicitly address them in therapy to prevent early termination.

Seventh, we did not conduct reliability tests for SCID diagnoses because we did not have a second independent interviewer. Ideally, a second interviewer blind to the first interviewer's report should have conducted an independent assessment of diagnostic status. At the same time, given the process-based approach of the study intervention, the purpose of reporting DSM-5 diagnoses was to provide a more detailed sample description rather than to evaluate treatment efficacy. Thus, although it is a limitation of our study, lack of reliability testing should not influence interpretation of current findings.

Eighth, we did not preregister the current clinical trial, which may mar the credibility of our a priori hypotheses and subsequent findings as well as increase the probability of publication bias. Although we tested hypotheses stated in our research proposal, it would be prudent for researchers to preregister clinical trials to increase transparency in the research process and reduce potential reporting bias.

Finally, a longer follow-up period would have provided more information on the longevity of treatment gains. This could be particularly important in the case of clinical perfectionism given many aspects of its presentation are ego-syntonic. Moreover, maladaptive

perfectionistic behavioral patterns tend to be longstanding and habitual, possibly rendering them more resistant to change and more prone to relapse.

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Table 1
Sample Descriptives

	Overall (N = 53)	ACT (n = 28)	Waitlist (n = 25)	<i>p</i> ^a
Age	25.4 (12.3)	25.9 (13.9)	25.0 (10.5)	.790
Gender				.135
Female	39 (73.6%)	23 (82.1%)	16 (64%)	
Male	14 (26.4%)	5 (17.9%)	9 (36%)	
Ethnicity				.463
African American	1 (1.9%)	1 (3.6%)	0 (0%)	
Asian American	1 (1.9%)	0 (0%)	1 (4%)	
European American	45 (84.9%)	25 (89.3%)	20 (80%)	
Latinx/Hispanic	5 (9.4%)	2 (7.1%)	3 (12%)	
Other	1 (1.9%)	0 (0%)	1 (4%)	
Marital status				.421
Single	39 (73.6%)	22 (78.6%)	17 (68%)	
Married	12 (22.6%)	5 (17.9%)	7 (28%)	
Divorced	1 (1.9%)	1 (3.6%)	0 (0%)	
Remarried	1 (1.9%)	0 (0%)	1 (4%)	
Employment status				.611
Unemployed/not working	8 (15.1%)	4 (14.3%)	4 (16%)	
Working part-time	21 (39.6%)	10 (35.7%)	11 (44%)	
Working full-time	4 (7.5%)	1 (3.6%)	3 (12%)	
Full-time student	17 (32.1%)	11 (39.3%)	6 (24%)	
Retired	3 (5.7%)	2 (7.1%)	1 (4%)	
Education				.738
M.A./M.S. or equivalent	3 (5.7%)	2 (7.1%)	1 (4%)	
Some graduate school	1 (1.9%)	1 (3.6%)	0 (0%)	
B.A/B.S. or equivalent	3 (5.7%)	2 (7.1%)	1 (4%)	
Associate degree	11 (20.8%)	5 (17.9%)	6 (24%)	
Some college	26 (49.1%)	12 (42.9%)	14 (56%)	
High school diploma or equivalent	9 (17%)	6 (21.4%)	3 (12%)	
Religion				.359
Catholic	2 (3.8%)	0 (0%)	2 (8%)	
LDS	42 (79.2%)	23 (82.1%)	19 (76%)	
Protestant (Christian)	1 (1.9%)	0 (0%)	1 (4%)	
Other	1 (1.9%)	1 (3.6%)	0 (0%)	
None	7 (13.2%)	4 (14.3%)	3 (12%)	
Diagnosis				.275
Social anxiety disorder	12 (22.6%)	8 (28.6%)	4 (16%)	

Generalized anxiety disorder	31 (58.5%)	20 (71.4%)	11 (44%)	.043
Obsessive-compulsive disorder	23 (43.4%)	10 (35.7%)	13 (52%)	.232
Hoarding disorder	4 (7.5%)	3 (10.7%)	1 (4%)	.356
Body dysmorphic disorder	2 (3.8%)	1 (3.6%)	1 (4%)	.935
Excoriation disorder	2 (3.8%)	1 (3.6%)	1 (4%)	.935
Binge eating disorder	2 (3.8%)	1 (3.6%)	1 (4%)	.935
Obsessive-compulsive personality disorder	36 (67.9%)	21 (75%)	15 (60%)	.243

^a Based on t-test for age and χ^2 -test for all other demographic variables.

Note. ACT = acceptance and commitment therapy; LDS = The Church of Jesus Christ of Latter-day Saints.

Table 2

Means, Standard Deviations, and Effect Sizes at Pretreatment, Posttreatment, and One-Month Follow-Up

	ACT		Waitlist		Between Groups
	Mean (SD)	Hedges' g^a (95% CI)	Mean (SD)	Hedges' g^a (95% CI)	Hedges' g (95% CI)
FMPS-CM					
Pretreatment	33.2 (8.4)		32.4 (6.4)		
Posttreatment	25.1 (6.2)	-1.05 (-1.68, -0.42)	32.4 (7.5)	-0.01 (-0.63, 0.62)	-1.03 (-0.32, -1.73)
Follow-up	25.3 (8.9)	-0.91 (-1.57, -0.24)	33.2 (8.1)	0.11 (-0.57, 0.78)	-0.90 (-1.69, -0.12)
FMPS-DA					
Pretreatment	15.6 (3.5)		15.2 (2.4)		
Posttreatment	13.0 (3.4)	-0.74 (-1.35, -0.13)	15.6 (3.1)	0.15 (-0.47, 0.77)	-0.78 (-1.45, -0.11)
Follow-up	13.3 (3.4)	-0.64 (-1.29, 0.00)	14.8 (3.5)	-0.13 (-0.81, 0.55)	-0.41 (-1.17, 0.35)
FMPS-PS					
Pretreatment	28.1 (5.5)		28.1 (5.0)		
Posttreatment	25.7 (5.8)	-0.42 (-1.03, 0.18)	28.5 (5.2)	0.09 (-0.53, 0.71)	-0.50 (-1.17, 0.16)
Follow-up	24.9 (5.7)	-0.56 (-1.20, 0.09)	27.0 (5.4)	-0.21 (-0.89, 0.4770342)	-0.36 (-1.12, 0.39)
OQ-45					
Pretreatment	80.6 (21.7)		75.2 (19.0)		
Posttreatment	55.5 (15.9)	-1.26 (-1.93, -0.59)	68.3 (21.4)	-0.34 (-0.97, 0.30)	-0.67 (-1.36, 0.03)
Follow-up	56.8 (17.2)	-1.16 (-1.85, -0.47)	70.0 (23.0)	-0.25 (-0.93, 0.44)	-0.63 (-1.40, 0.14)
VQ-Progress					
Pretreatment	15.2 (6.5)		17.2 (3.1)		
Posttreatment	23.3 (4.4)	1.38 (0.71, 2.05)	17.4 (3.9)	0.06 (-0.55, 0.68)	1.39 (0.64, 2.13)
Follow-up	18.4 (7.0)	0.46 (-0.18, 1.10)	14.8 (5.3)	-0.59 (-1.28, 0.10)	0.57 (-0.20, 1.33)
QOLS					
Pretreatment	74.9 (15.7)		74.5 (11.8)		
Posttreatment	87.3 (12.9)	0.83 (0.19, 1.47)	76.7 (13.0)	0.18 (-0.44, 0.79)	0.80 (0.10, 1.49)
Follow-up	86.7 (13.9)	0.76 (0.11, 1.42)	72.9 (13.5)	-0.12 (-0.80, 0.55)	0.98 (0.18, 1.77)
AAQ-II					
Pretreatment	31.9 (8.3)		29.6 (8.0)		
Posttreatment	21.9 (6.2)	-1.31 (-1.98, -0.64)	26.9 (7.1)	-0.35 (-0.97, 0.26)	-0.73 (-1.42, -0.04)
Follow-up	21.2 (7.5)	-1.31 (-2.01, -0.62)	28.9 (10.0)	-0.09 (-0.76, 0.59)	-0.83 (-1.61, -0.05)

SCS					
Pretreatment	14.4 (3.7)		14.3 (3.1)		
Posttreatment	19.0 (3.1)	1.28 (0.60, 1.95)	15.4 (3.4)	0.36 (-0.27, 0.99)	1.06 (0.33, 1.80)
Follow-up	18.4 (3.9)	1.03 (0.36, 1.70)	14.4 (3.8)	0.04 (-0.65, 0.73)	1.00 (0.19, 1.81)

^a Within-group effect sizes.

Note. ACT = acceptance and commitment therapy; SD = standard deviation; CI = confidence interval; FMPS = Frost Multidimensional Perfectionism Scale; CM = Concern Over Mistakes; DA = Doubting of Actions; PS = Personal Standards; OQ-45 = Outcome Questionnaire-45.2; VQ = Valuing Questionnaire; QOLS = Quality of Life Scale; AAQ-II = Acceptance and Action Questionnaire—II; SCS = Self-Compassion Scale.

Table 3
Coefficients for Best-Fitting Mixed Effects Models

	FMPS-CM	FMPS-DA	FMPS-PS	OQ-45	VQ-Progress	QOLS	AAQ-II	SCS
Intercept	33.25*** (1.38)	15.61*** (0.60)	28.10*** (0.74)	80.96*** (3.70)	15.25*** (0.96)	75.26*** (2.64)	32.06*** (1.44)	14.40*** (0.63)
Condition ^a	-0.81 (2.02)	-0.29 (0.88)		-6.05 (5.40)	1.95 (1.40)	-0.78 (3.84)	-2.42 (2.09)	-0.12 (0.91)
Posttreatment	-7.34*** (1.36)	-2.45*** (0.61)	-1.14 (0.62)	-21.07*** (3.98)	7.31*** (1.28)	8.36*** (2.10)	-9.08*** (1.71)	4.21*** (0.59)
Follow-up	-6.81*** (1.48)	-2.10** (0.66)	-2.21** (0.68)	-19.01*** (4.11)	2.69* (1.33)	7.64*** (2.16)	-9.54*** (1.78)	3.36*** (0.61)
Condition × Posttreatment	7.50*** (1.98)	2.46** (0.88)		16.00** (5.65)	-7.13*** (1.80)	-7.19* (2.91)	6.37** (2.38)	-3.07*** (0.83)
Condition × Follow-up	7.65*** (2.17)	1.17 (0.97)		17.32** (5.99)	-5.05** (1.95)	-11.31*** (3.13)	8.69*** (2.58)	-2.96*** (0.90)
BIC	823.64	624.45	709.20	1029.79	758.11	929.47	833.60	600.57
Log likelihood	-392.64	-293.04	-342.63	-495.85	-359.90	-445.62	-397.69	-281.23
Number of observations	121	121	120	117	120	119	119	117
Number of participants	53	53	52	53	53	53	53	53

^a Reference group is waitlist.

* $p < .05$. ** $p < .01$. *** $p < .001$.

Note. FMPS = Frost Multidimensional Perfectionism Scale; CM = Concern Over Mistakes; DA = Doubting of Actions; PS = Personal Standards; OQ-45 = Outcome Questionnaire-45.2; VQ = Valuing Questionnaire; QOLS = Quality of Life Scale; AAQ-II = Acceptance and Action Questionnaire—II; SCS = Self-Compassion Scale; AIC = Akaike information criterion; BIC = Bayesian information criterion.

Table 4
Clinically Significant and Reliable Change for Concern Over Mistakes, Distress and Impairment, and Quality of Life

	Posttreatment					One-Month Follow-up				
	ACT (n = 20)	Waitlist (n = 18)	χ^2	df	p	ACT (n = 16)	Waitlist (n = 14)	χ^2	df	p
FMPS-CM										
Clinically significant change			2.18	1	.140			1.4286	1	.232
Yes	9 (45%)	4 (22.2%)				8 (50%)	4 (28.6%)			
No	11 (55%)	14 (77.8%)				8 (50%)	10 (71.4%)			
Reliable change			4.60	2	.100			8.8776	2	.012
Improved	13 (65%)	7 (38.9%)				9 (56.2%)	1 (7.1%)			
No change	5 (25%)	4 (22.2%)				4 (25%)	10 (71.4%)			
Worsened	2 (10%)	7 (38.9%)				3 (18.8%)	3 (21.4%)			
Recovery status			4.80	3	.187			8.978	3	.030
Recovered	7 (35%)	3 (16.7%)				7 (43.8%)	1 (7.1%)			
Improved	6 (30%)	4 (22.2%)				2 (12.5%)	0 (0%)			
Unchanged	5 (25%)	4 (22.2%)				4 (25%)	10 (71.4%)			
Deteriorated	2 (10%)	7 (38.9%)				3 (18.8%)	3 (21.4%)			
OQ-45										
Clinically significant change			0.12	1	.729			6.6964	1	.010
Yes	12 (66.7%)	11 (61.1%)				14 (87.5%)	6 (42.9%)			
No	6 (33.3%)	7 (38.9%)				2 (12.5%)	8 (57.1%)			
Reliable change			5.86	2	.053			3.5611	2	.169
Improved	13 (76.5%)	6 (35.3%)				11 (68.8%)	5 (35.7%)			
No change	2 (11.8%)	5 (29.4%)				3 (18.8%)	4 (28.6%)			
Worsened	2 (11.8%)	6 (35.3%)				2 (12.5%)	5 (35.7%)			
Recovery status			5.88	3	.118			5.4219	3	.143
Recovered	9 (52.9%)	4 (23.5%)				10 (62.5%)	3 (21.4%)			

Improved	4 (23.5%)	2 (11.8%)			1 (6.2%)	2 (14.3%)		
Unchanged	2 (11.8%)	5 (29.4%)			3 (18.8%)	4 (28.6%)		
Deteriorated	2 (11.8%)	6 (35.3%)			2 (12.5%)	5 (35.7%)		
QOLS								
Clinically significant change			4.50	1	.034			2.2493 1 .134
Yes	16 (88.9%)	11 (57.9%)				14 (87.5%)	9 (64.3%)	
No	2 (11.1%)	8 (42.1%)				2 (12.5%)	5 (35.7%)	
Reliable change			5.97	2	.051			7.4117 2 .025
Improved	11 (64.7%)	5 (26.3%)				10 (62.5%)	3 (21.4%)	
No change	5 (29.4%)	9 (47.4%)				4 (25%)	3 (21.4%)	
Worsened	1 (5.9%)	5 (26.3%)				2 (12.5%)	8 (57.1%)	
Recovery status			6.29	3	.098			7.6435 3 .054
Recovered	10 (58.8%)	4 (21.1%)				9 (56.2%)	3 (21.4%)	
Improved	1 (5.9%)	1 (5.3%)				1 (6.2%)	0 (0%)	
Unchanged	5 (29.4%)	9 (47.4%)				4 (25%)	3 (21.4%)	
Deteriorated	1 (5.9%)	5 (26.3%)				2 (12.5%)	8 (57.1%)	

Note. Statistically significant between-group differences at $p < .05$ are bolded. ACT = acceptance and commitment therapy; FMPS = Frost Multidimensional Perfectionism Scale; CM = Concern Over Mistakes; OQ-45 = Outcome Questionnaire-45.2; QOLS = Quality of Life Scale.

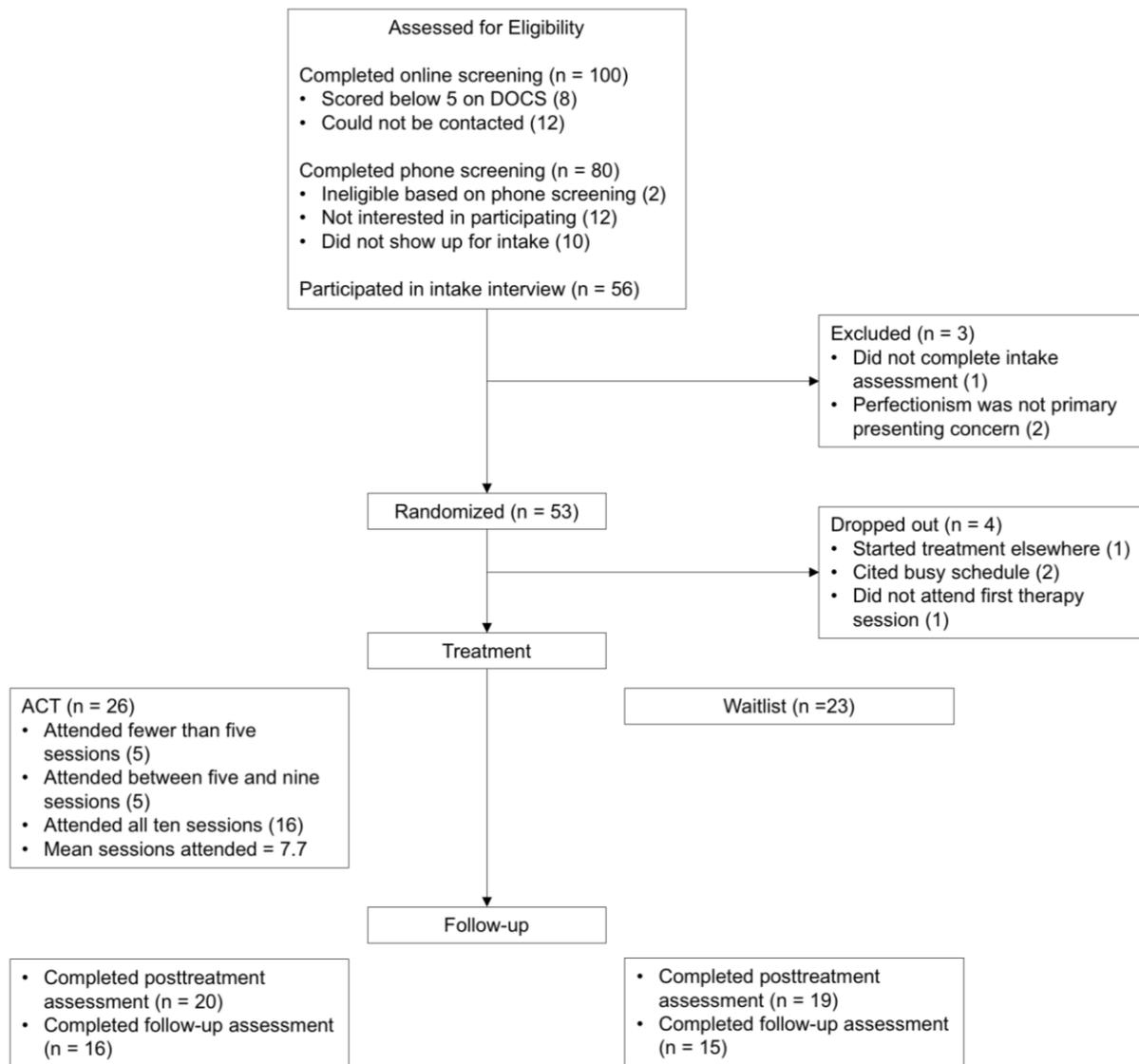


Figure 1. Flowchart depicting participant eligibility, dropout, and session attendance.

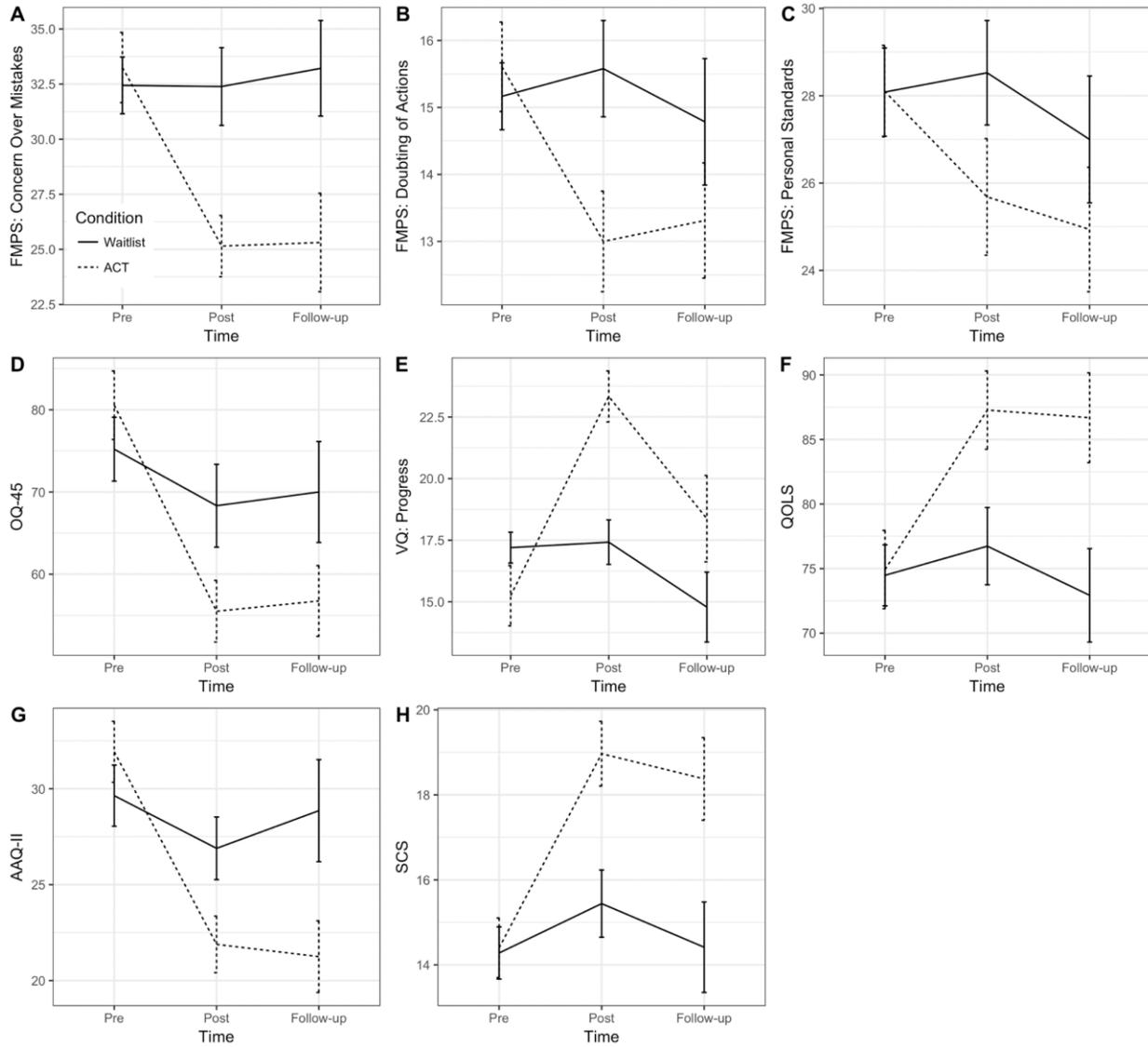


Figure 2. Plots of changes in outcomes over time. Vertical bars represent standard errors. ACT = acceptance and commitment therapy; FMPS = Frost Multidimensional Perfectionism Scale; OQ-45 = Outcome Questionnaire-45.2; VQ = Valuing Questionnaire; QOLS = Quality of Life Scale; AAQ-II = Acceptance and Action Questionnaire—II; SCS = Self-Compassion Scale.