



## Acceptance and Commitment Therapy modules: Differential impact on treatment processes and outcomes



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### ABSTRACT

A modular, transdiagnostic approach to treatment design and implementation may increase the public health impact of evidence-based psychosocial interventions. Such an approach relies on algorithms for selecting and implementing treatment components intended to have a specific therapeutic effect, yet there is little evidence for how components function independent of their treatment packages when employed in clinical service settings. This study aimed to demonstrate the specificity of treatment effects for two components of Acceptance and Commitment Therapy (ACT), a promising candidate for modularization. A randomized, nonconcurrent, multiple-baseline across participants design was used to examine component effects on treatment processes and outcomes in 15 adults seeking mental health treatment. The ACT OPEN module targeted acceptance and cognitive defusion; the ACT ENGAGED module targeted values-based activation and persistence. According to Tau-U analyses, both modules produced significant improvements in psychiatric symptoms, quality of life, and targeted therapeutic processes. ACT ENGAGED demonstrated greater improvements in quality of life and values-based activation. ACT OPEN showed greater improvements in symptom severity, acceptance, and defusion. Both modules improved awareness and non-reactivity, which were mutually targeted, though using distinct intervention procedures. Both interventions demonstrated high treatment acceptability, completion, and patient satisfaction. Treatment effects were maintained at 3-month follow up. ACT components should be considered for inclusion in a modular approach to implementing evidence-based psychosocial interventions for adults.

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### 1. Introduction

The public health impact of evidence-based psychosocial interventions (EBPI) remains relatively low despite a proliferation of efficacious treatments for a wide range of behavioral and mental health problems (McHugh & Barlow, 2012; Wang et al., 2005). This science-practice gap may reflect a failure of the dominant intervention research paradigm to adequately address factors that

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influence the implementation of EBPI in usual care (Fairburn & Wilson, 2013; Kazdin & Blase, 2011; Rotheram-Borus, Swendeman, & Chorpita, 2012). Therapists report that they value the science behind EBPI, but are concerned that standardized manuals do not meet the needs of real-world clients and practice settings (Addis & Krasnow, 2000; Borntrager, Chorpita, Higa-McMillan, & Weisz, 2009; Nelson & Steele, 2007).

One promising approach to streamlining the translation of behavioral science to service is modularized treatment, which preserves the benefits of standardization inherent in manualized protocols, while allowing personalization through the use of algorithms for selecting treatment components. A recent randomized effectiveness trial for depression, anxiety, and conduct disorders in youth provides a compelling case example (Weisz et al., 2012). Modular treatment outperformed both standardized manual-based

treatments and usual care in rate of clinical improvement and number of diagnoses at post-treatment (Chorpita et al., 2013), as well as number of service settings utilized one-year after treatment was initiated (Park et al., 2015). Modularization may further increase EBPI impact through improved therapist-mediated implementation outcomes. For example, therapists trained in a modular approach, versus a standard sequential manual, showed more favorable attitudes toward EBPI, a predictor of EBPI adoption (Borntrager et al., 2009). Additionally, therapists perceived modular treatments as more effective than usual care and more responsive than standard EBPI, contributing to significantly greater therapist satisfaction with modular treatment – an effect that grew as therapists gained more experience with modular treatment cases (Chorpita et al., 2015).

Acceptance and Commitment Therapy (ACT; (Hayes, Strosahl, & Wilson, 1999, 2012)) is a promising candidate for modularization because it is based on a transdiagnostic model that guides case formulation and selection of therapy tasks from a set of complementary treatment components, affording personalized treatment that is grounded in theory and evidence. ACT interventions are defined by their application of this *psychological flexibility model*, which specifies a set of modifiable processes involved in the development, maintenance, and amelioration of a broad range of problems in living (Hayes, Levin, Plumb-Villardaga, Villatte, & Pistorello, 2013; Kashdan & Rottenberg, 2010). As opposed to transdiagnostic approaches that allow for individualized targeting of multiple disorders within a unified treatment protocol, ACT specifies a set of clinical competencies that are applied based on a functional assessment of psychological flexibility, regardless of diagnoses (Luoma, Hayes, & Walser, 2007). ACT treatment effects are partially or fully mediated by changes in these psychological processes (Hayes, Villatte, Levin, & Hildebrandt, 2011) and a recent meta-analysis of ACT component interventions reported medium to large effects on targeted outcomes for treatment procedures suggested by the psychological flexibility model (Levin, Hildebrandt, Lillis, & Hayes, 2012). Similarly, a recent process analysis showed that each 1-unit increase in smoking counselors' use of procedures targeting certain ACT processes resulted in a 42–52% lower odds of smoking at subsequent counseling sessions (Villardaga, Heffner, Mercer, & Bricker, 2014). Finally, many elements of the psychological flexibility model are shared by modern contextual therapies (Hayes et al., 2011) and traditional cognitive and behavioral therapies (Arch & Craske, 2008; Hofmann & Asmundson, 2008), which could facilitate the adoption and integration of these components in a modular treatment approach.

The fact that a component is shared by multiple EBPIs, however, is not sufficient to guide clinical decisions; an effective modular treatment depends on algorithms for selecting which components to implement in which situation (Chorpita, Daleiden, & Weisz, 2005a). This requires evidence of how component procedures impact therapy processes and outcomes, and how components function when removed from the treatment protocols tested in efficacy trials (Hayes et al., 2013; Rosen & Davison, 2003). Dismantling studies provide one method of acquiring this knowledge, but their feasibility is limited by the very large samples required to compare multiple components. Single case experimental designs (SCED) provide a pragmatic alternative that, when well-designed and executed, rival the scientific rigor of randomized controlled trials while requiring far fewer participants (Barlow, Nock, & Hersen, 2008; Smith, 2012; Villardaga, 2014). Further, SCED have been used effectively in modular treatment development and evaluation (Chorpita, Taylor, Francis, Moffitt, & Austin, 2004), in part because many of these designs are analogous to clinical decision-making in a modular treatment approach.

The purpose of the current study was to examine the functional

relationships between ACT intervention components, processes, and outcomes to inform the development of a modular, transdiagnostic treatment for adults. A randomized, nonconcurrent, multiple-baseline across participants design ( $N = 15$ ) was used to examine the specificity of treatment effects for two ACT component modules; one targeting openness to thoughts, feelings, and sensations and the other emphasizing engagement in meaningful actions. These modules were examined in a sample of adults seeking treatment for depression and anxiety disorders. Visual and statistical analyses were employed to compare module effects on process and outcome measures across baseline, intervention, and follow-up phases. It was hypothesized that both interventions would produce improvements in psychiatric symptoms and quality of life, as well as in mutually targeted psychological processes. Group differences were expected in processes that were uniquely targeted by only one intervention module. Results of this proof-of-concept study will inform the development and evaluation of actuarial guidelines for selecting and implementing ACT components in a modular treatment design.

## 2. Method

### 2.1. Participants

Since ACT interventions target core processes that cross-cut psychiatric diagnoses, study inclusion was based on clinically significant psychological distress rather than diagnostic criteria. Participants were required to meet clinical case status (general severity index T score  $\geq 63$ ) on the Brief Symptom Inventory (Derogatis, 1993) and be 18 years or older. Individuals with active psychotic symptoms and those who could not read assessment measures written in English were excluded from study participation.

Participants were recruited through announcements in a community newspaper in northern-Nevada and 63 people were assessed by phone for study eligibility. Eighteen people met inclusion criteria and were invited to meet with an assessor for a 2-h clinical interview. The assessor confirmed eligibility, administered the *Structured Clinical Interview for DSM-IV-TR Axis I Disorders* (First, Spitzer, Gibbon, & Williams, 2002) for sample description purposes, and obtained demographic information and consent for participation. Three participants dropped out after index assessment, but before random assignment, due to scheduling constraints. No participants refused participation after random assignment and all randomized participants ( $N = 15$ ) were included in the main analyses.

Table 1 details participant demographics and diagnostic profiles at baseline. At time of enrollment, 67% were currently taking psychiatric medications. Of those 10 participants, 100% took one SSRI antidepressant, 13.3% took one benzodiazepine, and 6.7% took a stimulant. All participants denied medication changes during the study period. There were no statistically significant differences between treatment conditions on any demographic or diagnostic variables.

### 2.2. Design and treatment assignment

The study was designed to evaluate the specificity of ACT component effects on therapy processes and outcomes. A randomized, nonconcurrent, multiple-baseline across participants design was employed to ensure timely treatment delivery while minimizing threats to internal validity.

A randomized block design was used to ensure roughly equivalent numbers of participants per baseline length, therapist, and treatment module. Following enrollment, participants were

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