



# The efficacy of Acceptance and Commitment Therapy: An updated systematic review and meta-analysis



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## ABSTRACT

Acceptance and Commitment therapy (ACT) has attracted a lot of interest during the last 10–15 years with a strong increase of the number of randomized controlled trials (RCTs). The present review and meta-analysis includes 60 RCTs (4234 participants) on psychiatric disorders, somatic disorders, and stress at work. The mean effect size across all comparisons was small (0.42). Compared to the Öst (2008) meta-analysis there was no significant improvement in methodological quality and deterioration in effect size (from 0.68). When ACT was compared to various forms of cognitive or behavioral treatments a small and non-significant effect size of 0.16 was obtained. An evidence-base evaluation showed that ACT is not yet well-established for any disorder. It is probably efficacious for chronic pain and tinnitus, possibly efficacious for depression, psychotic symptoms, OCD, mixed anxiety, drug abuse, and stress at work, and experimental for the remaining disorders.

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## Introduction

Acceptance and Commitment Therapy (ACT) has attracted a lot of interest during the last 15 years, since the publication of *Acceptance and commitment therapy* by in 1999 the founders of this treatment, Steven Hayes, Kirk Strosahl, and Kelly Wilson. A search in the database PsycINFO with acceptance and commitment therapy as search word yielded 78 hits 2000–2004, 309 hits 2005–2009, and 500 hits 2010–2014. This also means an almost exponential increment in the number of randomized clinical trials (RCTs). This body of research has been reviewed a number of times, e.g. Hayes (2004), Ruiz (2010), Smout Hayes, Atkins, Klausen, and Duguid (2012), and Swain, Hancock, Hainsworth, and Bowman (2013), which focused specifically on anxiety.

There have been a number of meta-analyses on ACT published during the last decade. Hayes, Luoma, Bond, Masuda, and Lillis (2006) included 18 RCTs and found a mean effect size (ES) of 0.66. Öst (2008) reported a mean ES of 0.68 across 13 RCTs, and Powers, Zum Vörde Sive Vörding, and Emmelkamp (2009) a mean of 0.30 with 18 RCTs. In addition to these general meta-analyses Ruiz (2012) published a meta-analysis which focused on 16

studies comparing ACT and CBT, finding a mean ES of 0.37, that was significant and in favor of ACT.

Why a new meta-analysis? The strong increase in RCTs during the last three years; 9 in 2011, 13 in 2012, and 10 in 2013, means that a large number of RCTs on ACT have never been included in a meta-analysis. This alone warrants an updated meta-analysis which will be able to investigate if the ES of 0.68 in the Öst (2008) paper including 13 RCTs, and the ES of 0.62 in a keynote (Öst, 2009) including 21 RCTs has changed in any direction. It will also enable an updated rating of methodological stringency and a test of whether studies published since the 2008 paper have improved in this respect, and if so in which factors of psychotherapy research methodology.

It is also of interest to update the evaluation of the evidence-base of ACT in light of the many new RCTs that have been published. In my 2008 article and the 2009 keynote I concluded that ACT was not yet a well-established treatment (highest level of empirical support) for any disorder. However, the homepage of the Association of Contextual Behavioral Science refers to websites of various organizations which have information on the evidence base of psychological treatments. Firstly, the Society of Clinical Psychology, Division 12 of the American Psychological Association, states on its website that ACT has strong research support (equals well-established) for chronic and persistent pain in general, and modest research support (equals probably efficacious) for depression, psychotic symptoms, obsessive–compulsive disorder, and

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mixed anxiety. Secondly, SAMHSA's National Registry of Evidence-Based Programs and Practices listed ACT as an evidence-based treatment in March 2011. However, that decision was based on only three studies (Bach & Hayes, 2002; Bond & Bunce, 2000; Twohig et al., 2010), which is remarkable when 28 RCTs had been published by the end of 2010. There is no information regarding how these three studies were selected.

The aims of the present article were to:

- Update the systematic review and meta-analysis of Öst (2008)
- Compare the early studies (included in Öst, 2008,  $n = 13$ ) with the later studies ( $n = 47$ ) regarding methodological stringency and effect size.
- Replicate the Ruiz (2012) comparison of ACT vs CBT in a larger sample of studies.
- Evaluate the evidence-base status of ACT for the different disorders it has been tried for.

## Method

### Literature search

PsycINFO and PubMed were searched from 1985 to November 2013 with the following search words: Acceptance or ACT, and Randomized controlled trial or RCT or random\*. I also used the list of RCTs published on the website of the Association of Contextual Behavioral Science by May 2013.

All abstracts were read and when there was an indication of a group of patients receiving the particular treatment being compared with another group in a randomized clinical trial (RCT) the full-text article was retrieved. Studies using single case designs were excluded since there is no consensus yet regarding the calculation of effect sizes. The reference lists in the retrieved articles were then checked against the database search and any other articles that might fulfill the inclusion criteria were retrieved.

### Inclusion criteria

In order to be included in the review and meta-analysis a study had to:

- be published, or in press, in an English language journal
- randomly allocate participants to either treatment and control, or to two or more active treatments
- have participants with either a psychiatric disorder, a somatic disorder, or stress reactions in work situations

Excluded from the review and meta-analysis were:

- Studies with normal people not applying for treatment
- RCTs with only 1–2 components of ACT
- Reanalysis of a subsample from a previously published RCT

Fig. 1 shows a flowchart of the inclusions of studies in the current meta-analysis.

### Classification of the RCTs

Based on the participants in the studies RCTs were classified as containing a psychiatric disorder (anxiety disorders, depression, mixed anxiety-depression, psychotic symptoms, drug abuse, nicotine dependence, trichotillomania, and borderline personality disorder), a somatic disorder (pain of various types, headache, epilepsy, tinnitus, overweight/obesity, cancer, diabetes and multiple sclerosis), or stress in work situations.

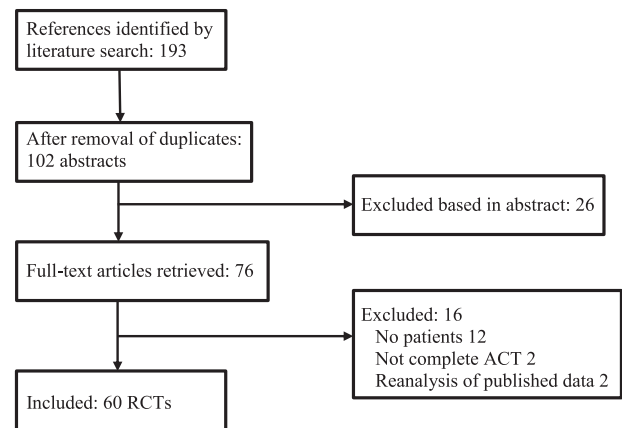


Fig. 1. Flowchart of the inclusion of studies.

### Methodological quality

In order to assess the quality of the research methodology in RCTs various scales have been developed, e.g. the Jadad criteria (Jadad et al., 1996). They are, however, usually constricted to rather few items rated as present or absent. This means that the range of scores is small (e.g. 2–4 in Cavanagh, Strauss, Forder, & Jones, 2014) with ensuing difficulties of showing a relationship between methodological quality and effect size. Based on previous work by Tolin (1999) I developed a scale containing 22 items (Öst, 2008) with a theoretical range of 0–44. When used in my 2008 meta-analysis the total score for the ACT studies ranged from 10 to 27. Thus, there should not be a problem of “restriction-of-range” with this scale.

### The psychotherapy outcome study methodology rating scale

The scale consists of the following items: 1. Clarity of sample description, 2. Severity/chronicity of the disorder, 3. Representativeness of the sample, 4. Reliability of the diagnosis in question, 5. Specificity of outcome measures, 6. Reliability and validity of outcome measures, 7. Use of blind evaluators, 8. Assessor training, 9. Assignment to treatment, 10. Design, 11. Power analysis, 12. Assessment points, 13. Manualized, replicable, specific treatment programs, 14. Number of therapists, 15. Therapist training/experience, 16. Checks for treatment adherence, 17. Checks for therapist competence, 18. Control of concomitant treatments, 19. Handling of attrition, 20. Statistical analyses and presentation of results, 21. Clinical significance, 22. Equality of therapy hours (for non-WLC designs only). Each item is rated as 0 = poor, 1 = fair, and 2 = good, and each step has a verbal description of one or more sentences.

### Psychometric data

The internal consistency of the scale was good with a Cronbach's  $\alpha$  of 0.81. In order to assess the inter rater reliability of the scale advanced graduate students in clinical psychology received 6 h of training in the use of the scale by the author, with various outcome studies as training examples. Then the students rated a random selection of 20% of the studies and the ratings were compared with those of the author. The intra-class correlation for the total score was 0.90, and the kappa coefficients on the individual items varied between 0.50 and 1.00, with a mean of 0.73, indicating a good inter-rater reliability.

### Meta-analysis

In the current meta-analysis the primary outcome measure for each study was used to calculate effect size. If a study did not

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