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An overview of research on acceptance and commitment therapy

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Key Points

- ACT is a process-based treatment that has been applied widely to problem areas impacted by psychological inflexibility.
- Reviews of mediation research indicate ACT improves outcomes by increasing psychological flexibility.
- Reviews of RCTs indicate the efficacy of ACT for depression, anxiety disorders, obsessive-compulsive and related disorders, psychosis, substance use disorders, chronic pain, coping with chronic health conditions, obesity, stigma, and stress and burnout.
- The evidence for ACT is growing in diverse cultural contexts, but more research is needed on ACT adapted and applied for minoritized and underserved populations.
- ACT is efficacious when applied through scalable, alternative treatment formats such as digital self-help, and possibly when delivered by non-mental health professionals.

Synopsis

This review summarized recent systematic reviews and meta-analyses on randomized controlled trials evaluating ACT. Although the strength of evidence varies, overall there is plausible evidence for the efficacy of ACT for a wide range of areas including depression, anxiety disorders, obsessive-compulsive and related disorders, psychosis, substance use disorders, chronic pain, coping with chronic health conditions, obesity, stigma, and stress and burnout. ACT is also efficacious when delivered in digital self-help formats. Emerging evidence indicates the potential efficacy of ACT for children and adolescents and when applied across diverse populations. Reviews of mediation research indicate ACT works through increasing psychological flexibility.

Keywords: acceptance and commitment therapy; mindfulness; psychological flexibility; contextual behavioral science; review.

An overview of research on acceptance and commitment therapy

Introduction

Acceptance and Commitment Therapy (ACT)[1] is a modern cognitive behavioral therapy that has grown significantly in research and dissemination over the past two decades[2]. Although the methodological rigor of each trial varies, there are now well over 1,000 randomized controlled trials (RCTs) on ACT for a wide range of areas across psychiatric conditions, chronic health conditions, and broader psychosocial concerns[3]. These RCTs represent efforts across the world in refining, studying, and delivering ACT, including in many countries outside of North America and Europe such as Iran[4], South Korea[5], and countries throughout Sub-Saharan Africa[6], among many others[7]. ACT has been increasingly adopted in empirically supported treatment guidelines throughout the world, such as the World Health Organization, the United Kingdom's National Institute for Health and Care Excellence, Australian Psychological Society, and American Psychological Association's Society of Clinical Psychology[8].

In this article, we aim to provide an overarching summary of research on ACT as of 2023, with an emphasis on summarizing recent systematic reviews and meta-analytic evidence. This will include a brief summary of the conceptual foundations of ACT and the underlying psychological flexibility model, followed by a review of treatment outcome research.

Conceptual foundations of ACT

The defining features of ACT are rooted in its conceptual foundations, beginning with functional contextualism as the underlying philosophy of science[9]. Functional contextualism diverges from the dominant perspective of science, which is to model the world as it *truly* is, by instead defining the analytic goals of science in terms of what works to predict and influence behavior. A core assumption is that behavior can only be understood (i.e., predicted and

influenced) in context, and thus methods and constructs are emphasized that examine the relations between behavior and context. To better clarify the unique assumptions and implications of functional contextualism for research, contextual behavioral science[10] (CBS) is used to describe the research paradigm underlying ACT, among other areas of scholarship rooted in this philosophy of science. CBS employs a reticulated strategy to theory building and testing that integrates areas of basic science, including behavior analysis and relational frame theory[11], with applied treatment research.

RFT highlights how human's capacity to arbitrarily derive relations between stimuli, and to alter the function of those stimuli due to these relations, is a core feature of how cognition works in adaptive and maladaptive ways. For example, thinking "If I look anxious, then people will laugh at me" involves a series of relations (e.g., "if-then," "I-others") that if responded to in a literal context (i.e., perceiving thoughts as true) could lead to sensations like one's heartbeat being experienced as threatening and eliciting more anxiety. Consistent with the focus on context, RFT also suggests that the context of these relations could be altered such that this could be responded to as just a thought ("*I'm having the thought that* if I look anxious, then people will laugh at me"), which might change how it functions, such as by reducing the experience of one's heartbeat as threatening and anxiety eliciting. Altering the function of inner experiences over their content is a key focus of ACT and is informed by RFT.

The psychological flexibility model

ACT theorizes that *psychological inflexibility* is the core process in the development and maintenance of psychopathology: a pattern of behavior in which rigid responses to internal stimuli dominate, rather than personal values and direct contingencies, in influencing actions[12]. Subprocesses that contribute to psychological inflexibility include maladaptive responses to

internal experiences such as experiential avoidance (i.e., rigid patterns of behavior focused on avoiding or otherwise altering one's internal experience), cognitive fusion (i.e., interacting with the content of thoughts on a literal basis such that they rigidly influence behavior), and attachment to a conceptualized self (i.e., overly engaging with a rigid, cognitively fused sense of self).

A large body of research supports the relevance of psychological inflexibility to psychological problems. One recent meta-analysis of 441 studies found experiential avoidance to have moderate-to-large relations (r = .34 - .56) with anxiety, depression, panic, obsessive-compulsive and related disorders (OCRDs) and post-traumatic stress disorder[13]. Another meta-analysis of 72 studies found deficits in valued action had medium-to-large relations with anxiety (r = .26) and depression (r = .42)[14]. A meta-analysis of 181 studies assessing emotion regulation in youth found that avoidance had medium-to-large positive relations with depression, anxiety, and addiction (r = .30-.46), while acceptance had medium-to-large negative relations with these outcomes (r = .23-.42)[15].

Psychological inflexibility is targeted in ACT by increasing *psychological flexibility,* the ability to engage in valued patterns of activity while accepting whatever internal experiences arise. Psychological flexibility is composed of subprocesses that directly target maladaptive inflexible responses to internal experiences including cognitive defusion (i.e., responding to thoughts as just thoughts), self-as-context (i.e., experiencing a sense of self distinct from verbal labels), and acceptance of internal experiences. Psychological flexibility also includes subprocesses that further leverage the adaptive functions of cognition including clarifying personal values, committed action (i.e., consistent patterns of behavior in pursuit of values), and flexible attention to the present moment.

As a process-focused treatment, ACT is applied broadly to any problem areas where psychological inflexibility plays a key role and/or where psychological flexibility can lead to improvements. The specific protocols vary based on the population and treatment setting in terms of how psychological flexibility is targeted (e.g., treatment length, exercises used), but share the process-based emphasis on psychological flexibility.

Consistent with the philosophy underlying ACT, the aim of the psychological flexibility model is not merely to accurately predict psychopathology, but to help influence change in the form needed for the client. Meta-analyses indicate that ACT is efficacious in reducing psychological inflexibility and increasing psychological flexibility across problem areas[2,16–19]. More importantly, mediation research supports the theory that ACT improves outcomes for clients by enhancing psychological flexibility. One meta-analysis of 50 ACT mediation studies found that increases in overall psychological flexibility, as well as subprocesses including acceptance, contact with the present moment, and values, significantly mediated treatment outcomes[20]. A meta-analysis of ACT for pain found that changes in pain acceptance and psychological flexibility mediated changes in disability[21]. Another meta-analysis found across 10 RCTs that the effects of ACT for anxiety and depression were significantly mediated by changes in psychological flexibility processes (r = .16)[22].

Reviews of randomized controlled trials (RCTs)

The following sections review the evidence for RCTs evaluating ACT using recent (as of 2023) meta-analyses and systematic reviews. Areas are included in this review that have significant evidence bases for ACT, as indicated by reviews published in the past few years that can reasonably draw at least tentative conclusions on the available research.

Depression. The first RCT ever completed on ACT was for depression, which sought to examine whether depressive cognitions could be addressed with defusion and acceptance rather than cognitive restructuring[23]. Since then, substantial work has occurred in ACT for depression. A meta-analysis with 55 RCTs found ACT to be superior to inactive and weaker active controls like treatment as usual (TAU) for depression[24]. This meta-analysis found an advantage for CBT over ACT on depression at posttreatment (d=-0.52), but this was not present at follow-up (d=-0.14)[24]. However, other reviews and meta-analyses have generally found comparable efficacy for ACT and other CBTs for depression[2,16]. Another meta-analysis of 40 RCTs evaluating group-based ACT found significant effects on depression favoring ACT relative to inactive (g = .55) and active control conditions (g = .30)[25].

Anxiety and anxiety disorders. While the work in ACT is minor compared to the vast literature in exposure-based CBTs, there are supportive studies of ACT for each major anxiety disorder specifically as well as transdiagnostic protocols applied across anxiety disorders[16]. An umbrella review of systematic reviews and meta-analyses found 14 meta-analyses and 11 systematic reviews on ACT for anxiety and depression, with the majority of these studies being on anxiety[16]. Results support ACT over passive and active control conditions, with the exception being CBTs where no difference is found between ACT and other CBTs[16]. A meta-analysis of 12 RCTs evaluating ACT specifically for participants with anxiety disorders found significant effects favoring ACT to TAU on clinician-rated (SMD = .98) and participant-rated anxiety (SMD = .99), but no significant difference between ACT and other CBTs[26]. A meta-analysis of 34 RCTs evaluating group-based ACT more broadly with any study that measured anxiety as an outcome found a medium effect favoring ACT to inactive control conditions (g = .70), but a non-significant small effect relative to active control conditions including CBT (g = .17)[25]. In

summary, ACT appears to be a viable treatment for anxiety issues, which might be particularly considered when CBT is not effective or when patient preference or clinical expertise suggests ACT is a better match.

Obsessive Compulsive and Related Disorders. Recent reviews and meta-analyses of ACT for Obsessive Compulsive Disorder (OCD) have identified more than 20 RCTs and repeatedly found that protocols containing ACT without in-session exposure and with in-session exposure work similarly to other empirically supported treatments such as exposure with response prevention or a more traditional CBT protocol[4,27]. In a recent meta-analysis of ACT for OCD a SMD of -1.19 was found in favor of ACT over control conditions[27], but like the other recent review[4], there is significant variability in these ACT studies across many variables.

Work in OCD related disorders such as body dysmorphic disorder, Tourette's Disorder, chronic skin picking disorder, and hoarding disorder is just beginning, but each area has some research completed[28]. A fairly substantial line of research has occurred for trichotillomania using a combination of stimulus control, habit reversal, and ACT called ACT-Enhanced Behavior Therapy (A-EBT). To date there have been six RCTs on A-EBT in addition to a few open trials and single subject designs[28]. A-EBT compared to waitlists has been shown to be effective in person, via telehealth, and over an asynchronous web-based program[28]. In the largest trial to date (N=78), A-EBT vs supportive psychotherapy showed 48% responder status in ACT and 28% in the active control condition[29]. Overall, these results suggest that ACT for OCD and A-EBT for trichotillomania have notable empirical support, while evidence is preliminary for ACT as a treatment for other OCRDs.

Psychosis. The psychosocial treatment of psychosis varies from many other diagnostic categories in that reduction in certain symptoms of the disorder are secondary to improving

functioning. Thus, Acceptance and Commitment Therapy for Psychosis (ACTp) has an equal, if not stronger, focus on quality of life and functioning over reduction in psychosis. Recent meta-analyses of ACTp often combine it with other mindfulness therapies. Morris and colleagues (2023) reviewed these meta-analyses and found that ACTp is "safe and efficacious across a range of clinical outcomes and processes, including psychotic symptoms, depression, anxiety, functioning, help-seeking, satisfaction, rehospitalization reduction, mindfulness and psychological flexibility"[30]. This review included four meta-analyses of ACTp specifically (with 4-8 RCTs included in each meta-analysis), finding significant effects favoring ACTp for reducing positive symptoms (SMD = .63), negative symptoms (SMD = .65), affective symptoms (SMD = .63-.64), and rehospitalization (OR = .37-.41; RR = .54)[30]. Thus, ACTp appears to be efficacious in helping reduce symptoms associated with psychosis and increasing functioning.

Substance Use Disorders. Cigarette smoking has been one of the earliest and most established areas of ACT research. A meta-analysis of 19 RCTs across six countries found greater cessation rates for ACT relative to control conditions at follow-up (risk ratio = 1.70-1.80)[31]. There has been less research on other substance use disorders, but preliminary results are promising[32]. A meta-analysis in 2015 largely captures the available RCT evidence to-date, finding across 5 RCTs that ACT led to greater cessation of drug use compared to active control conditions at post-treatment (g = .45)[33].

Chronic Pain. There is a well-established literature indicating the efficacy of ACT for chronic pain, primarily relative to treatment as usual (TAU), placebo, or no treatment comparison conditions. A meta-analysis of 33 RCTs with adult chronic pain patients found significant small to medium effect sizes favoring ACT relative to control conditions (waitlist, TAU, placebo) on physical functioning (g = .59), pain intensity (g = .44), and depression,

anxiety, and quality of life (g = .43)[34]. Follow-up analyses indicated smaller, but still significant, effect sizes for longer (6-12 month) follow-up time points, non-specific and mixed pain samples, and digital interventions relative to face-to-face therapy[34].

Chronic Health Conditions. ACT has been applied to improve quality of life across a wide range of chronic health conditions. In a meta-analysis of 55 RCTs and quasi-experimental studies, the most frequent studies were conducted among patients with cancer (n = 35) and diabetes (n = 9), with other studies including patients with overweight (n = 4), stroke (n = 3), coronary heart disease (n = 2), epilepsy (n = 2), asthma (n = 1), and arthritis (n = 1)[35]. Significant medium to large effect sizes were found favoring ACT to comparison conditions on quality of life (standardized mean difference [SMD] = .87) and symptom improvement (SMD = .77), including relative to active treatment comparisons specifically (quality of life SMD = .79; symptoms SMD = .53)[35]. Preliminary, but more mixed results have been found for ACT in improving quality of life and depression/anxiety symptoms among patients with multiple sclerosis in a review that included five RCTs[36]. A review of 10 RCTs evaluating ACT or other mindfulness-based treatments for inflammatory bowel disease found small effect sizes for improving quality of life and mental health relative to control conditions (SMD = .15-.39), but no effects on disease activity[37].

Studies have found ACT improves disease management for some chronic health conditions. A review of ACT RCTs conducted specifically in Iran found that ACT significantly improved HbA1c in seven of nine studies and blood pressure in five studies[4]. A review of ACT for patients with cardiovascular disease found that ACT improved self-management of cardiovascular disease in five RCTs (e.g., adherence to treatment recommendations, physical activity, self-care skills)[38]. A review of 3 RCTs found ACT significantly improved impairment related to tinnitus[39].

Compared to TAU, ACT was found to improve initiation of antiretroviral treatment and engagement in substance use treatment in a sample of 100 participants with HIV using injection drugs[40]. ACT has also been used to increase health behaviors in various samples. For example, a meta-analysis of five RCTs found a significant small effect size favoring ACT to control conditions on increasing physical activity (SMD = .32)[41].

Obesity. ACT has been used with individuals with overweight to focus on addressing outcomes including weight loss, health behaviors, weight self-stigma, and/or quality of life. A systematic review of 16 RCTs found positive, though somewhat mixed, evidence for ACT in targeting these outcomes, with the results varying based on the outcomes targeted, the intensity of the ACT intervention, the rigor and follow up length of assessments, and the comparison condition, which range from no treatment controls to standard behavior therapy[42]. A meta-analysis that combined these heterogeneous studies found a significant medium effect favoring ACT on body mass index (weighted mean difference [WMD] = .50) and weight self-stigma across 5 RCTs (WMD = .77), but with non-significant small effects for eating behaviors and quality of life[17].

Stigma. One review identified 12 RCTs evaluating ACT for self-stigma and shame in a range of populations including individuals with psychiatric disorders, substance use disorders, and overweight[43]. Although there were some mixed results across studies, overall these RCTs tended to find ACT reduced self-stigma and shame while improving quality of life and mental health. Another review found in 7 studies (combining RCTs, quasi-experimental, and single arm designs) that ACT significantly improved stigma toward others (primarily individuals with psychiatric conditions, with one study evaluating ACT to reduce racial prejudice)[44].

Stress and Burnout. ACT has been applied in target populations experiencing stress and burnout. A meta-analysis of 10 RCTs evaluating ACT for healthcare workers found significant small effect sizes for work-related burnout and stress at follow up relative to inactive (g = .25) and active comparison conditions (g = .36), but these effects were not present at post-treatment[45]. Another meta-analysis of 17 RCTs evaluating ACT in the workplace found a significant medium effect size for reducing distress relative to active and inactive control conditions among non-healthcare workers (8 RCTs; g = .51), but a non-significant small effect size for healthcare workers (9 RCTs; g = .22)[19].

ACT has also been studied for family caregivers. A meta-analysis of seven RCTs with parents caregiving for a child with autism or a chronic health condition found significant small to medium effects favoring ACT relative to active and inactive control conditions on measures of distress (SMD = .55) and parenting confidence (SMD = .34)[46]. Another meta-analysis of 11 RCTs combining caregivers of adults or children with chronic health conditions found significant small to medium effects favoring ACT to TAU/placebo control conditions on depression (SMD = .46), anxiety (SMD = .30) and stress (SMD = .54)[47].

Children and Adolescents. A review identified 34 studies (including case studies, single case designs, single-arm trials as well as 13 RCTs) evaluating ACT for children and adolescents[48]. Although results are largely based on small pilot trials, initial findings suggest ACT might similarly be effective with children and adolescents for chronic pain, anxiety, obsessive-compulsive and related disorders, depression, conduct problems, and eating disorders. A meta-analysis of 14 RCTs evaluating ACT with children (published in English or Chinese) found significant large effects favoring ACT to waitlist on depression and anxiety (SMD = .86) and quality of life (SMD = 1.74) as well as a medium effect favoring ACT to TAU on depression and

anxiety (SMD = .59), but not for quality of life compared to TAU[49]. ACT was found to be comparable to CBT in the 4 RCTs testing both of these active treatments with children[49].

Diverse Populations. Although ACT shares the common problem among other psychotherapies of being overly developed in and based on populations that are Western, Educated, Industrialized, Rich, and Democratic (WEIRD), there are growing bodies of evidence for ACT in non-WEIRD populations. Most notably, a review identified 110 RCTs that provide empirical support for ACT in Iran across a wide range of mental health concerns[4]. Another review identified 59 RCTs and quasi-experimental studies generally indicating empirical support for ACT in South Korea for a wide range of outcomes[5]. A review on ACT in Sub-Saharan Africa found 8 RCTs and single-arm trials, which generally provided support for the efficacy of ACT in targeting a range of mental health outcomes[6]. These examples highlight the breadth and depth of ACT research occurring outside of non-WEIRD populations to further evaluate, adapt, and refine ACT for diverse populations.

The representation of racial, sexual, and gender minorities in ACT trials is generally limited overall, and further research is needed to determine the generalizability and adaptation needs of ACT for minoritized populations[50]. Preliminary research has been conducted for example in LGBTQI+ populations, with a review of five studies on ACT with LGBTQI+ individuals finding ACT buffered the impact of proximal and distal minority stressors, and improved mental health and quality of life, but much more research is needed[51].

Alternate Treatment Delivery Methods. Similar to trends in CBT more broadly, a large body of research has developed over the past decade indicating ACT can be effectively delivered in digital, self-guided formats (i.e., self-help websites and mobile apps) for a wide range of populations and problem areas. A meta-analysis of 53 RCTs evaluating ACT in web or app

formats found significant small effects favoring ACT to waitlist on anxiety (g = .30), depression (g = .44), and quality of life (g = .20), with more mixed results for active control group comparisons[18].

Another strategy to increase reach and access to ACT is by training individuals who are not mental health professionals to deliver the intervention. A review identified 17 studies (10 of which were completed RCTs) evaluating ACT delivered by non-mental health professionals and community members including other healthcare workers, teachers, students, mothers, correctional staff, and other community adults[52]. Results indicated 16 of 17 studies found promising, positive results for ACT delivered by non-mental health professionals and community members for participants with mental health concerns, chronic health conditions, and caregivers[52].

Discussion

This review highlights the breadth and scope of ACT outcome research across varied psychiatric and chronic health conditions as well as in addressing broader psychosocial concerns. Overall, the existing RCT evidence base indicates ACT can be applied to effectively treat a broad range of problem areas, including in alternative, scalable formats such as digital self-help and when delivered by non-mental health professionals. This work has been conducted in diverse populations throughout the world, indicating ACT can be adapted and implemented in other cultural contexts, although more work is needed in studying ACT with minoritized and underserved populations. Importantly, research also supports the underlying theoretical model ACT is based on, with changes in psychological flexibility accounting for how ACT improves these mental health outcomes.

Several limitations should be noted when considering the evidence base for ACT. As noted previously, much more research is needed on ACT in non-WEIRD populations and among people with minoritized identities. Additionally, many of the meta-analyses in this review identified concerns with methodological quality in some of the included RCTs[4,5,17,25,26,42,43,45,49], including small sample sizes, handling of missing data, lack of masking, questionable randomization practices, problems with representativeness of samples, lack of assessor training, and lack of power analysis. Limitations related to measurement are also notable. From a theoretical perspective, the primary aim of ACT is to increase valued living, rather than reduce negatively evaluated inner experiences[12]; however, valued living is rarely the primary outcome in ACT treatment trials[2], creating a discrepancy between the model and research base. Measurement of ACT treatment processes has also relied heavily on one self-report measure with notable conceptual and psychometric limitations, and mediational research would be strengthened through the use of alternative ACT process measures[53].

Although ACT has been evaluated with just about any major problem area that might be treated by a psychosocial intervention, the strength of evidence for ACT varies. This review focused on more developed areas of ACT research. That said, there are other areas that have multiple positive RCTs and/or single arm trials that were not reviewed including eating disorders[54], posttraumatic stress disorder[55], insomnia[56], intimate partner violence[57], and adults with autism or intellectual disabilities[58], among other areas.

Another limitation of this review is the focus on RCTs for targeted conditions. This approach to categorizing evidence for ACT based on diagnostic categories and evaluating efficacy using group-level averages misses key information from a process-based therapy perspective, which ultimately is focused on clinical decision making for individual clients[59]. In

the future, more research is needed that examines idiographic patterns of change to see who specifically benefits from treatment, and how, which can then be scaled back up to nomothetic information that guides clinical decision making[59]. The effect of averaging change across individuals, categorized by topographically defined syndromes, is a likely contributor to the lack of clear information in the literature on which treatment will be more beneficial to which clients (e.g., when should I use ACT or cognitive therapy or behavioral activation for this problem?). Rather than "horse race" tests that have a "winner take all" approach in testing superior efficacy across an average of all people in a diagnostic category, more research is needed that drills down to understand which therapeutic processes are more beneficial to target, how, and for whom. One of our hopes in this review is that by highlighting the existing RCT evidence for ACT, the field can increasingly become empowered and motivated to move beyond testing the broad questions of the efficacy of ACT for particular conditions to these more precise, innovative areas of discovery needed to guide the more specific challenges faced in clinical decision making.

Summary

Consistent with its process-based approach, ACT is efficacious for a wide range of problem areas to which psychological flexibility applies. Although the strength of the evidence base varies across these areas, the research continues to grow rapidly and with increasingly rigorous trials being conducted in specific populations.

Clinical Care Points

- Consider conceptualizing clients' presenting concerns in terms of how and where psychological inflexibility is contributing, and how psychological flexibility could produce meaningful changes.

- Although RCTs for specific conditions often focus on changes in symptoms, it is important to remember the goal of ACT is to increase valued living (i.e., engaging in what matters to clients, even when difficult internal experiences arise).
- ACT has been found efficacious for a wide range of mental health concerns, but there is not clear evidence of superior efficacy in most areas over other well-established cognitive behavioral therapies, so consider evidence-based practice principles in deciding which treatment is the best fit for a given client. Also, routine outcome monitoring is always important to assess whether treatment is working for your individual client.

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