Scoping Review of Acceptance and Commitment Therapy

for Obsessive-Compulsive Disorder in Iran

Michael P. Twohig1

Mohammad Seydavi2

Leila K. Capel1

Michael E. Levin1

Mehdi Akbari2\*

1Department of Psychology, Utah State University, Logan, United States of America

2Department of Clinical Psychology, Kharazmi University of Tehran, Iran

# Details of the Corresponding Author: Mehdi Akbari, PhD

Tel: +98 9128157106

Full postal address: Department of Clinical psychology, Faculty of Psychology, Kharazmi University, No.43. South Mofatteh Ave., Tehran, Iran

Email: M.akbari@khu.ac.ir

Abstract

Acceptance and commitment therapy (ACT) for obsessive compulsive disorder (OCD) has been found efficacious in randomized clinical trials (RCTs), but the two widely known RCTs were conducted within the United States with predominantly White samples. Research is needed that evaluates treatments like ACT for OCD outside the typical Western cultures. The current scoping review summarizes the key characteristics and findings from 18 RCTs that evaluated ACT for OCD in Iran. These RCTs are largely unknown in the broader scientific literature despite representing the vast majority of ACT for OCD trials, in part because the majority are published in Persian. The preponderance of RCTs treated participants in groups and most protocols did not include exposure exercises. Five of 18 trials were single-sex. Use of SSRIs was common, with all participants on stable doses at pretreatment in many of the trials. Methodological quality was low to medium. ACT was inconsistent against nontraditional comparison conditions, slightly favorable to empirically validated treatments, and favorable compared to waitlist and SSRIs. Process of change data indicated ACT increased psychological flexibility more than CBT or SSRIs. These results highlight that findings on ACT for OCD from Western populations replicate and generalize to individuals in Iran. These findings also offer insights gained from studying ACT in Iran, and significantly expand the literature base on ACT for OCD that can be integrated into scholarship by all researchers.

 *Keywords:* Acceptance and commitment therapy, ACT, obsessive-compulsive disorder, OCD, Iran, randomized control trial, RCT, review.

Scoping Review of Acceptance and Commitment Therapy for Obsessive-Compulsive Disorder in Iran

Obsessive compulsive Disorder (OCD) is defined by recurrent unwanted and intrusive thoughts that the individual works to control or suppress and/or compulsive actions meant to control or neutralize the unwanted intrusive thoughts, and these events interfere with functioning (APA, 2022). OCD has a prevalence rate of 1.2% and OCD can negatively affect functioning across a myriad of areas (APA, 2022). First-line treatment for OCD is exposure with response prevention or cognitive behavior therapy (Twohig et al., 2018). Another treatment of interest for OCD is Acceptance and Commitment therapy (ACT) which focuses on teaching skills to cognitively distance oneself from the obsession, see it for what it is, connect with life values, and make steps towards those values rather than working to regulate obsessions (Twohig et al., 2015a).

Research on ACT for OCD has been occurring for almost two decades. The first empirical study of acceptance and commitment therapy (ACT) for OCD was a multiple baseline design conducted in the United States (US) testing eight sessions of ACT without explicit exposure exercises (Twohig, Hayes, & Masuda, 2006). Results were favorable, with a 68% reduction in OCD at posttreatment and 81% at follow-up. This study was followed by a randomized clinical trial (RCT) of the same eight-session ACT protocol that did not include formal exposures versus progressive relaxation training (PRT) in a well-controlled federally funded trial (Twohig et al., 2010). Researchers found a 46-56% response rate at posttreatment and 46-66% at follow-up in ACT, compared to 13-18% and 16-18% in the control condition. Secondary analyses supported psychological flexibility as a change process (Twohig, Vilardaga, Levin, & Hayes, 2015).

 In the two ACT for OCD studies just described, testing ACT minus formal exposure exercises, and in a relatively short duration (eight one-hour sessions), was done to determine if teaching psychological flexibility would reduce OCD. If that was the case, the next obvious step was to test ACT with formal exposures. ACT combined with exposure therapy vs. exposure and response prevention (ERP) was then tested in a multisite RCT with 58 adults in the USA (Twohig et al., 2018). Results were strong for both groups with no differences in outcomes: clinical response rates at posttreatment and follow-up for ACT+ERP were (70% and 60%), and ERP were (68% and 64%). Subsequent data analyses found moderation and mediation differences (Ong et al., 2020). Ultimately, the protocol used in this RCT (ACT + ERP) is the one that is most conceptually and empirically supported.

 In addition to the RCTs just described, there are many case studies, single subject designs, and open trials on ACT for OCD (Bluett, Homan, Morrison, Levin, & Twohig, 2014; Philip, & Cherian, 2021; Soondrum, Wang, Gao, Liu, Fan, & Zhu, 2022) and a large RCT conducted in the US on mixed anxiety disorders that included OCD (Arch et al., 2012). This series of studies is typically what is referenced when discussing the nearly two decades of ACT for OCD research. However, these studies all share a common limitation of being conducted within the USA.

The significant limitations in the treatment literature, and science more broadly, due to excessive focus on studying samples from Western populations has been well documented (e.g., Henrich et al., 2010; Hendriks et al., 2018). Given the impact of cultural factors on psychopathology and treatment (e.g., Arundell et al., 2021; Hwang et al., 2008), it is important to not assume that findings from treatments developed and validated in Western populations will necessarily generalize to other populations. At the core of this issue is the awareness that cultures (e.g., customs, values, beliefs) across countries vary. There is limited information on whether many treatments are efficacious in other understudied cultures, which exacerbates health disparities for underserved communities. Furthermore, the overreliance on studying Western populations misses important insights and opportunities that can be gained from studying and adapting treatments across more diverse contexts and populations. It is important to develop bidirectional communication in the research literature across diverse settings for the entire field to progress.

In the case of ACT for OCD, the widely known research shares this challenge of being heavily reliant on samples drawn from Western populations (e.g., Twohig et al., 2010; 2018). However, ACT for OCD research has actually been occurring across the globe with publications in diverse countries including Brazil (Laurito et al., 2022) and India (Philip & Cherian, 2022). In terms of quantity, no country is producing more ACT for OCD research than Iran (Akbari, Seydavi, Davis, Levin, Twohig, & Zamani, 2022). These ACT for OCD trials are reported on as part of a narrative review of RCTs in Iran using ACT. The review found 110 RCTs, including 16 on OCD (the most of any diagnosis), but due to the large number of trials reviewed, specific information is limited and would be insufficient to draw data from for meta-analyses (Akbari et al., 2016). The first papers on ACT for OCD in Iran occurred in 2013, and there has been a steady flow since then. Starting in 2019, authors in Iran started collaborating with authors in the USA, and some of their work was published in Western journals (e.g., Shabani et al., 2019). Still, 12 of 18 (66%) of the publications are not readable to those who cannot read Persian (or Farsi), which has likely contributed to the low awareness of this vast body of research. This is evidenced when looking at recent reviews (e.g., Philip, & Cherian, 2021; Soondrum, et al. 2022) where only four to five RCTs conducted in Iran were captured in the reviews of ACT for OCD. The majority of the ACT for OCD RCTs conducted in Iran are not located by researchers.

These 16 RCTs greatly outnumber the two well-known RCTs in the US and thus provide extremely valuable insights that need to be integrated within the broader literature. Key study characteristics to summarize in a scoping review include how ACT for OCD has been implemented, if and how exposures have been incorporated, distinct features in participant samples, the quality and features of study designs, and participant outcome scores between conditions. This information would allow for greater understanding and integration of this large treatment literature as well as clarifying how the implementation and study of ACT might differ in Iran. It is critical that the work from Iran research is included when considering the evidence of ACT for OCD. Not knowing this information will send us down unnecessary paths and improperly guide our work. For example, ACT for OCD in Iran includes more group work and less exposure therapy. These are underresearched topics and international reserachers will benefit from incorporating these findings in their work.

A scoping review methodology was employed as they are preferred over systematic reviews or meta-analyses when evaluating broad questions in emerging evidence bases such as identifying gaps in the literature, characterizing the research, evaluating how the work is conducted, determining methods, and assessing outcomes (Munn et al., 2018). The overarching aim of this scoping review of ACT for OCD RCTs in Iran is to provide a broad descriptive analysis of this research literature. First, the review includes a summary of participant demographics, OCD symptomatology, and medication use. This data highlights distinct features of Iranian research and treatment provision for OCD such as cultural policies on mixed-sex groups and customary medical practices in Iran (e.g., use of antidepressant [SSRIs] as first-line intervention). Second, the review summarizes features of treatment protocols including format, length, and whether and how exposure was integrated to further characterize the protocols tested. Third, the methodological quality of the RCTs is reviewed. Fourth, a review is provided of the outcome and process of change findings from these RCTs, including aggregated descriptive statistics when available on commonly used OCD symptom measures. Overall, these findings will serve to further our understanding of the efficacy and delivery of ACT for OCD in Iran. These findings will expand the knowledge of ACT for OCD broadly, and guide us in our research endeavors. Specifically, these findings will open doors to research possibilities (e.g., issues around exposure) and possible confirm things we already know about the treatment of OCD.

**Method**

**Study Selection**

More detailed search methods are available in (Akbari et al., 2022). The search was rerun in March 2022 and no additional articles were found. A second round of search was conducted in June 2023 and at this stage two additional studies met the inclusion criteria and the current study was updated accordingly.

Studies were included that: (a) were peer-reviewed in either Persian or English; (b) used RCTs with random assignment; (c) included an ACT condition for OCD, and (d) occurred in Iran. PsycINFO, PubMed, Scopus, and all Iranian databases (not available outside of Iran), and reference lists, were searched . The following terms were searched, “ACT,” “acceptance and commitment therapy,” and “Iran,” and only the papers on OCD were reported.

**Data Extraction and Coding**

The list of included studies is provided in Table 1. The large majority of studies (12 of 16) included in this review were published in Persian (Farsi) thus making 75% of the articles inaccessible to researchers who cannot read Farsi. The Iranian authors and the team of USA collaborators created multiple tables of information to be extracted, and the Iranian team extracted those data from the original articles. Supplementary Table 1 is a detailed version of Table 1 that includes scores for measures other than OCD and extended information on the outcomes. Supplementary Table 2 includes specific details on study designs including group vs individual sessions, conditions, number of sessions, duration of sessions, information on exposures, and information on manuals used. Supplementary Table 3 includes information on the participants including % male or female, *M* age, ethnicity, religious affiliation, types of OCD treated, % on medication, and names of medications. These detailed supplementary tables are provided to further support awareness and integration of the Iranian ACT for OCD research with other future scholarship, particularly given the primary source materials for several studies are not interpretable among those who cannot read Farsi.

Studies were rated for methodological quality based on the Kocsis et al. (2010) RCT Quality Assessment Scale. This measure assesses study features including description of the subjects, definition and delivery of treatment, outcome measures, data analysis, treatment assignment, and overall study quality. Each item is scored on a scale of 0 (lowest possible score indicating insufficient information or poorly described) to 2 (highest possible score indicating full description and implementation) except for the final item, which is rated on a scale of 0 (exceptionally poor) to 6 (exceptionally good).The two Iranian authors reviewed the included studies for quality appraisal and any controversies were resolved during the review process. Supplementary Table 4 includes the raw data on the quality assessments presented by study.

**Results**

**RCT Quality**

There was significant variability across trials in the thoroughness of information presented for rating items in each section of the RCT Quality Assessment Scale (additional coding information is available in supplemental materials). Overall description of the subjects ranged in thoroughness across studies from scores of 0 to 2 (*M* = 1.16; rated on a 0-2 scale); with particular strength in diagnostic method and criteria for inclusion, and particular weakness in description of relevant comorbidities. Definition and delivery of the treatment similarly varied across studies (0-2), but were generally rated well (*M* = 1.55).

It was found that validated outcomes measures were used (*M* = 1.9) and specified in advance (*M* = 1.8). However, raters were not unaware of condition (*M* = 0.2); safety and adverse events were not recorded (*M* = 0); and long-term outcomes were not always recorded at short durations (*M* = 0.7). Data analysis also had strong and weak areas. Intent-to-treat analyses were seldom used (*M* = 0.16); description of drop-out and withdrawal was poor (*M* = 0.5); appropriate statistical tests were often used (*M* = 1.6); adequate sample sizes received a modest score (*M* = 1.05); therapist and site effects were not sufficiently considered (*M* = 0.55). Thus, there are some concerns regarding the data analyses in this literature. The treatment assignment section overall was rated well across trials (primarily 1-2; *M* = 1.69). There was an exception for random assignment to treatment groups, in which three trials scored a 2 (full and appropriate method of randomization performed after screening and baseline assessment), 11 trials scored a 1 (adequate but poorly defined randomization procedures), and three trials scored a 0 (poor; pseudo-randomization, sequential assignment) or no randomization (*M* = 1.05).

For the item assessing the balance of allegiance to types of treatment by practitioners (*M* = 0.55), five trials scored a 2 (full balance of allegiance to treatments), and 13 trials scored a 0 (no information or poor balance of allegiance). For the item assessing whether conclusions of the study are justified by the sample, measures, and data analysis (*M* = 1.05), four trials scored a 2 (all conclusions of study justified and complete information presented), 11 trials scored a 1 (some conclusions of study justified or partial or information presented), three trials scored a 0 (poor or no justification of conclusions). Finally, the omnibus rating (0-6 rating range) was scored across trials between 3-6 (*M* = 4.16). Five trials scored a 3 (moderately poor), eight trials scored a 4 (average), two trials scored a 5 (moderately good), and three trials scored a 6 (very good).

**Additional quality assessment.** Two primary issues arise from the quality assessment: diagnosis and assessment. One trial specified that participants had previously received diagnoses of OCD, one trials used a structured clinical interview (Dehaghi et al., 2022) but 16 of the trials did not make it clear how participants were assessed for OCD, and only 12 of the 18 trials used the Yale-Brown Obsessive-Compulsive Scale (Y-BOCS) or Child Yale-Brown Obsessive-Compulsive Scale (CY-BOCS) to assess symptom severity. The second issue that arose is the small sample sizes of each trial. Many trials had small sample sizes with conditions of 15 participants each being quite common, which notably increases the potential for type I (because they are underpowered) and II errors (because of outliers or file drawer issues).

**Delivery of Treatment**

The treatment protocols evaluated in the 18 reviewed RCTs ranged between eight and 25 sessions, with the majority of trials doing eight sessions. Each session ranged from 45 minutes to 2 hours of the 10 RCTs reporting session length. Most protocols consisted of weekly sessions, but two studies provided twice-weekly meetings. Two trials evaluated ACT delivered as individual therapy sessions, 13 delivered ACT through group therapy, and one study was not clear on this variable. One trial combined individual and group therapy and met twice-weekly. The participants in three trials were adolescents, and the remaining fifteen trials were adults.

**Comparison Conditions**

Each study utilized ACT in at least one of the active treatment conditions. Five trials compared ACT to SSRIs and/or combined treatment (e.g., ACT+SSRI and CBT+SSRI). Seven trials compared ACT-only with another type of therapy-only (ERP, compassion-focused therapy, narrative therapy, time perspective therapy, Islamic spiritual therapy) and a waitlist. Four trials compared ACT to only a waitlist condition (see supplemental materials for additional information). One trial used a nontraditional design with four conditions (ACT vs control and with and without a family history of OCD; Maleki-Pirbazari et al, 2021). Another trial compared ACT to Religion-adapted ACT for scrupulosity based OCD (Dehaghi et al., 2022).

**Inclusion of Exposure in ACT**

The description of the treatment protocols ranged in specificity (for additional information, see supplemental materials). The majority of trials (13 of 18) followed an ACT-only protocol without exposures (e.g., Twohig et al., 2010; Hayes & Strosahl, 2010; Hayes et al., 1999). Of the four trials that included exposure, they greatly varied in exposure duration. One trial included a full five sessions of in-session exposure exercises. A second study engaged in approximately two sessions of in-session exposure work. The final three studies only assigned out of session values-based exposures. Thus, even when exposures were incorporated into treatment in these studies, it was not at what is considered an empirically supported level.

**Participant Characteristics**

 **Demographics.** The participant population for each trial ranged widely. Most trials ranged from 44-91% female; however, four trials were 100% female, and one trial was 100% male. The participants ranged in age. Three trials were adolescents only, and the remaining trials were adults only. Participant race, ethnicity, and religion were not provided in any of the trials except one, as is typical for research in Iran because it is a relatively homogeneous country.

**OCD subtypes and medication use.** The OCD symptoms treated across the studies ranged primarily in harm, scrupulosity, contamination, not just right, and hoarding symptoms. Additionally, several trials reported medication use for most participants at intake as SSRIs are the first-line treatment in Iran. Five trials had 100% of participants at optimal doses of medication at intake. One trial reported that 67% of participants were on medication at intake. Four trials reported that participants were not taking any medication. Six trials did not report participant medication. Additional details can be found in the supplemental materials.

**Review of Treatment Outcome Results**

RCTs from Iran can be broken down into four major design categories (with two remaining that are hard to categorize): ACT vs. waitlist, ACT vs. nontraditional comparison groups (e.g., narrative therapy), ACT vs. SSRIs or continued SSRIs (as SSRIs are often the first-line treatment for OCD in Iran), and ACT vs. CBT or ERP (or continued SSRI+ACT vs. continued SSRI+ERP). We will summarize the outcomes of these comparison conditions on OCD symptom severity. One study is only represented in Table 1 because it had a nontraditional design (Maleki-Pirbazari et al., 2021). Because some studies have multiple conditions, some studies will be represented in two categories. Table 1 provides a summary of all outcomes.

**ACT vs. Waitlist (WL).** Nine studies compared ACT to a WL condition (Izadi et al., 2014; Ghazanfari et al., 2015; Narimani et al., 2017; Zahiri et al., 2018; Shabani et al., 2019; Azad et al., 2019; Jashni et al., 2020; Rajabi et al., 2020; Borghei et al., 2020). The ACT condition had significantly greater improvements in OCD symptoms relative to the WL condition in all studies.

**ACT vs. Nontraditional comparison conditions.** In three studies, ACT was compared to a nontraditional comparison condition. Esfahani et al. (2015) found that ACT was more effective in reducing OCD than time perspective therapy and narrative therapy. Ghazanfari et al. (2015) and Derakhtkar et al., (2022) found ACT to be equivalent to metacognitive therapy. ACT was not more effective than Islamic Spirituality Therapy as measured by the Disgust Propensity and Sensitivity Scale-Revised (DPSS-R; Borghei et al., 2020). In the final study, eight sessions of ACT was compared to 25 sessions of Religion-adapted ACT (Dehaghi et al., 2022). Religion-adapted ACT had stronger effects on OCD as measured by the Y-BOCS but it was not more effective on scrupulosity. Overall, these results paint a mixed picture of ACT compared to nontraditional comparison conditions.

**ACT or ACT + Continued SSRI vs. Continued SSRI.** Two studies compared ACT to SSRI and ACT+SSRI (Vakili et al., 2013; Baghooli et al., 2014), and three studies compared ACT plus continued SSRI (participants stable on SSRI in baseline) vs. continued SSRI (Rohani et al., 2018; Shabani et al. 2019; Zemestani, 2020). In all five studies, the ACT or ACT+SSRI condition had significantly stronger improvements in OCD symptom severity relative to the SSRI condition.

**ACT+SSRI vs. ERP+SSRI.** Because SSRIs are the first-line treatment in Iran, there are two studies that compare ACT to ERP with participants who were on a stable dose of SSRI. Shabani et al. (2019) completed their study with adolescents using the C-YBOCS, and Zemestani et al. (2020) completed theirs with adults using the Y-BOCS. Results were equivalent between conditions on OCD, with both groups showing notable reductions across time points.

**ACT vs. ERP/CBT.** In four studies, ACT was compared to ERP (Derakhtkar et al., 2022; Izadi et al., 2014; Narimani et al., 2017; Jashni et al., 2020). In two of the four studies, ACT significantly reduced OCD symptom severity compared to ERP. In the third study, the ERP condition demonstrated a greater reduction in OCD symptom severity than the ACT condition. In a final study, ACT was more effective than a cognitive therapy condition, but was less effective than a mindfulness+cognitive therapy (MiCT) condition, although at follow-up ACT and MiCT were the most effective interventions (Derakhtkar et al., 2022).

**Process of change data**

Four studies included measures of psychological flexibility (the key process of change in ACT). There were three adult studies (Izadi et al., 2014; Rohani et al., 2018; Zemestani et al., 2020), which all utilized the Acceptance and Action Questionnaire-II to measure psychological flexibility (AAQ-II; Bond et al., 2011), and one adolescent study (Shabani et al., 2019), which used the Avoidance and Fusion Questionnaire for Youth (AFQ-Y; Greco et al., 2008). One adult study (Rohani et al., 2018) compared ACT + SSRI and SRRI alone and found statistically significant improvement in psychological flexibility in the ACT + SSRI condition compared to SSRIs alone. Three of these studies compared ACT to versions of CBT, making these findings theoretically useful in distinguishing between treatment approaches. All three studies (both adult and adolescent) comparing ACT with CBT demonstrated significantly greater changes in psychological flexibility in the ACT condition relative to the CBT condition (Izadi et al., 2014; Shabani et al., 2019; Zemestani et al., 2020).

**Discussion**

This scoping review covers all 18 RCTs on ACT for OCD completed up until June of 2023 in Iran. The design of these trials are notably different than what is considered best-practice in the United States, which in part might reflect differences in conducting research in varying cultures. Overall, this review indicates the potential efficacy of ACT for OCD in Iran, confirming its generalizability outside of studies conducted in Western populations. This expands the research evidence on ACT for OCD, including evaluating ACT protocols without exposure and relative to ERP, SSRIs, and nontraditional interventions. It also highlights unique features of implementing and studying ACT for OCD in Iran. Specifically, Iran is a different cultural context than the USA (where the work developed) which affects not only the type of client treated, but the medical, educational, and political system that the work occurs in.

While outcomes of these studies are consistent with RCTs in the USA, comparing ACT to traditional ERP or CBT (e.g., Twohig, Abramowitz, et al., 2018), it is notable that similar outcomes occurred when exposure was not incorporated in the majority of the treatment protocols used. Most trials (13 of 18) followed the Twohig et al. (2010) manual, which did not utilize exposure exercises. When exposures were used, they were brief, which is inconsistent with best practices. This might be due to differences in clinical practice or cultural factors regarding the acceptability of exposure exercises, but it might also be due to researchers in Iran being heavily influenced by earlier protocols of ACT that did not include exposures (e.g., Hayes et al., 1999; Twohig et al., 2010).

The quality of RCTs were low to medium as rated on a validated assessment of RCT quality. Weaknesses in design included lack of masked raters, lack of long-term follow-up, lack of intent-to-treat analyses, lack of information on drop out, concerns around randomization occurred in some studies, and possible allegiance effects. Additionally, the sample size of the treatment conditions is concerningly low. Thus, the outcome findings that are reviewed should be interpreted with appropriate caution in terms of potential risks to replicability. Design strengths included use of validated measures, appropriate statistical tests, and appropriate conclusions.

 There was significant variability in comparison conditions (e.g., waitlist, continued SSRI, CBT/ERP, and less traditional comparisons). We presented between condition outcomes as follows: ACT vs. waitlist, ACT vs. nontraditional comparison groups (e.g., narrative therapy), ACT vs. selective serotonin reuptake inhibitors (SSRIs), or continued SSRIs (as SSRIs are often the first-line treatment for OCD in Iran), and ACT vs. CBT or ERP (or continued SSRI+ACT vs. continued SSRI+ERP). We found that ACT was always superior to waitlist conditions. Results were inconsistent when comparing ACT to active but nontraditional comparison conditions. ACT or ACT+continued SSRI vs. SSRI showed that the ACT conditions were always favored. ACT+continued SSRI vs CBT+continued SSRI were equivalent in two trials. ACT outperformed CBT or ERP in two of three studies at posttreatment, with one study being equivalent at follow-up. In a final study, ACT was more effective than a cognitive therapy condition, but was less effective than a mindfulness+cognitive therapy condition (Derakhtkar et al., 2022).

Because of the varying quality of control conditions, only some studies will end up being influential. Still, when taken together, these studies support ACT for OCD—even without exposure—for participants in Iran.

 Another finding was that all four studies that compared a version of ACT to a version of CBT used a measure of psychological flexibility (three used the AAQ-II and one used the AFQ-Y; Izadi et al., 2014; Rohani et al., 2018; Shabani et al., 2019; Zemestani et al., 2020). All studies found that the ACT condition moved psychological flexibility more than the comparison condition. On the one hand this is useful information, it also has to be balanced with the other hand that suggests that the AAQ-II has poor discriminate validity and has been found to capture neuroticism and distress (Ong, Sheehan, & Haaga, 2023). This highlights the need for Iranian researchers to validate the disorder specific measure of psychological inflexibility for OCD (AAQ-OC; Jacoby, Abramowitz, Bucholz, Reuman, & Blakley, 2018). Disorder specific versions of the AAQ do not appear to suffer from the same issues with discriminant validity (Ong, et al., 2023).

 There are some fascinating things found in this scoping review. To begin, the addition of the 18 RCTs out of Iran greatly increases the number of RCTs on ACT for OCD. To our knowledge, there were only two RCTs on ACT for OCD and one study of ACT for mixed anxiety, which included subgroup analyses with OCD, completed in the US (Arch et al., 2012; Twohig et al., 2018; Twohig et al., 2010). The addition of these 18 trials by research groups who were not developers, or even trained by the developers, provides support for ACT for OCD. These studies also expand the literature on ACT for OCD in adolescents which was limited to a couple single subject designs.

Based on the way Iranian schooling and educational promotion processes work, there is a tendency for graduate students and faculty to publish at a high rate. Variables such as low funding and somewhat limited RCT training affect the overall quality of some of these trials (e.g., studies being underpowered). Still, some of these choices end up being scientifically useful (e.g., three-arm studies, studies where all participants were on stable SSRI doses).

 For example, to our surprise, the vast majority of these studies used the Twohig et al. (2010) manual, which was an eight-session ACT protocol solely focusing on building psychological flexibility. That protocol was originally tested to see if building psychological flexibility led to decreases in OCD; if that were the case, ACT procedures would be incorporated with more traditional exposure exercises from an ACT perspective (Twohig et al., 2015). It is remarkable that strong findings, with OCD scores in the nonclinical range, were found in the majority of these trials. While surprising, this may indicate that an ACT alone protocol could be a suitable treatment for OCD. Again, this is unexpected based on the majority of OCD research thus far, but a dozen successful trials of ACT alone should not be ignored.

 Additionally, because Iranian healthcare is centralized, and the first step in treatment is SSRI in Iran, many SSRI partials responders were available and seeking additional services. This feature of Iranian healthcare made it relatively easy to recruit for psychotherapy therapy trials for SSRI partial responders. Multiple studies showed that adding ACT or CBT plus continued SSRI is a useful treatment program with results equivalent to ACT or CBT alone. They also repeatedly show that the individual or combination treatment is more effective than SSRIs alone. The clear need for continued treatment after SSRI raises questions about SSRIs alone as a first line intervention for OCD (Del Casale, et al., 2019).

 As noted earlier, the RCT quality was low to medium. This is largely the result of the cultural research practices in Iran, where funding for studies is low, and many of these studies are conducted by graduate students. Training in some elements of research design also appears necessary as most group sizes were in the 15-20 participant range even when comparing interventions with large effect sizes. Therefore, some studies were underpowered or susceptible to outliers. Nevertheless, multiple studies were completed in each area, so we are not relying on single studies.

 As with all papers, there are limitations. First, we are using Western ideas, such as when assessing methodological quality (Kocsis et al., 2010), to judge a line of research out of another country and culture. Even the items that were chosen to be extracted from these studies were heavily influenced by Western research training. It is possible that other pertinent information is in these studies that we did not know to code for, although this is lessened through the article representing a collaboration between US and Iranian researchers. Another limitation is that we conducted a scoping review; thus, we do not have aggregated effect sizes to share as would be common in a meta-analysis. We chose a scoping review because of the heterogeneity of the studies, variability in methodological quality, and because we wanted to emphasize other aspects of the research beyond outcomes. For example, the lack of use of exposure exercises within ACT might be the most notable finding of this scoping review. Another limitation to the entire data set reviewed, is that methodologically the studies were poor to medium. Many were underpowered, and did not include power estimates necessary to determine appropriate numbers of participants for each condition. Additionally, analyses were not always sophisticated and used intent to treat samples. These specific methodological limitations, raise concerns over the replicability of some of the findings. Finally, the majority of the work done in Iran was completed without support from ACT treatment development researchers in the rest of the world. Thus, the Iranian researchers had to adapt the manuals and learn the therapies without much outside guidance or support. Therefore, the cultural adaptions were somewhat conducted in a vacuum and they have been difficult to disseminate to Western researchers. Research teams from multiple countries should work together to help describe the cultural adaptions that occurred so that others can learn from them.

 In summary, from a global research standpoint, the work on ACT for OCD is several steps further than is portrayed in Western journals (e.g., Philip, & Cherian, 2021; Soondrum, et al. 2022). Instead of there being just a couple of RCTs on ACT for OCD, there are closer to 20. We have much more data on ACT for younger people; those on stable SSRIs and the process of change data were generally supportive. We believe that these results suggest that more investigation into ACT without exposure and the process of change research is needed. Further we hope this review helps to further highlight important areas of research being conducted on OCD treatment outside the Western populations commonly emphasized in our treatment literature.

References

References marked with an asterisk indicate studies included in the review.

Akbari, M., Seydavi, M., Davis, C. H., Levin, M. E., Twohig, M. P., & Zamani, E. (2022). The current status of acceptance and commitment therapy (ACT) in Iran: A systematic narrative review. *Journal of Contextual Behavioral Science*, *26*, 85-96. <https://doi.org/10.1016/j.jcbs.2022.08.007>

American Psychiatric Association. (2022). Diagnostic and statistical manual of mental disorders (5th ed., text rev.). <https://doi.org/10.1176/appi.books.9780890425787>

Arch, J. J., Eifert, G. H., Davies, C. Vilardaga, J. C. P., Rose, R. D., & Craske, M. G. (2012). Randomized clinical trial of cognitive behavioral therapy (CBT) versus acceptance and commitment therapy (ACT) for mixed anxiety disorders. *Journal of consulting and clinical psychology, 80*(5), 750-765. doi:10.1037/a0028310.supp (Supplemental)

Arundell, L.-L., Barnett, P., Buckman, J. E. J., Saunders, R., & Pilling, S. (2021). The effectiveness of adapted psychological interventions for people from ethnic minority groups: A systematic review and conceptual typology. Clinical Psychology Review, 88, Article 102063. <https://doi.org/10.1016/j.cpr.2021.102063>

\*Azad, M. A., Manshaei, G. R., & Ghamarani, A. (2019). The effectiveness of acceptance and commitment therapy on the obsessive-compulsive syndrome and thought-action fusion in students with obsessive-compulsive disorder. *Journal of Psychological Science*, *73*, 67-76.

\*Baghooli, H., Dolatshahi, B., Mohammadkhani, P., Moshtagh, N., & Naziri, G. (2014). Effectiveness of acceptance and commitment therapy in reduction of severity symptoms of patients with obsessive--compulsive disorder. *Advances in Environmental Biology*, 2519-2525.

Bluett, E. J., Homan, K. J., Morrison, K. L., Levin, M. E., & Twohig, M. P. (2014). Acceptance and commitment therapy for anxiety and OCD spectrum disorders: An empirical review. *Journal of anxiety disorders, 28*(6), 612-624.

Bond, F. W., Hayes, S. C., Baer, R. A., Carpenter, K. M., Guenole, N., Orcutt, H. K., ... & Zettle, R. D. (2011). Preliminary psychometric properties of the Acceptance and Action Questionnaire–II: A revised measure of psychological inflexibility and experiential avoidance. *Behavior therapy*, *42*(4), 676-688.

\*Borghei, Sh. S., Roshan, R., & Bahrami, H. )2020(. Comparison of Islamic Spirituality therapy with Acceptance and Commitment Therapy (ACT) for reducing feelings of disgust and depression in women with obsessive-compulsive disorder. *Psychology and religion, 49,* 39-56.

\*Dehaghi, A. A., Dolatshahi, B., Taremian, F., Pourshahbaz, A., & Ansari, H. (2022). Development and Evaluation of an Acceptance and Commitment Therapy based on Religious Content to Control Obsessive-Compulsive Disorder, Dysfunctional Beliefs, Feeling Guilty, Scrupulosity, and Thought Control among Muslims in Iran. (preprint). <https://doi.org/>10.21203/rs.3.rs-2035054/v1

Del Casale, A., Sorice, S., Padovano, A., Simmaco, M., Ferracuti, S., Lamis, D. A., ... & Pompili, M. (2019). Psychopharmacological treatment of obsessive-compulsive disorder (OCD). *Current neuropharmacology*, *17*(8), 710-736.

\*Derakhtkar, A., Khezrimoghadam, N., & Fazilatpour, M. (2022). The Effectiveness of Mindfulness-Integrated Cognitive Behavioral Therapy (MiCBT), Meta-Cognitive Therapy (MCT), Acceptance and Commitment Therapy (ACT), and Cognitive Behavioral Therapy (CBT) on Obsessive-Compulsive Disorder (OCD). *International Journal of Health Studies, 8(2)*:46-52

\*Esfahani, M., Kjbaf, M. B., & Abedi, M. R. (2015). Evaluation and comparison of the effects of time perspective therapy, acceptance and commitment therapy and narrative therapy on severity of symptoms of obsessive-compulsive disorder. *Journal of the Indian Academy of Applied Psychology*, *41*(3), 148.

\*Ghazanfari, F., Amiri, F., & Zangi Abadi, M. (2015). The Effectiveness of Acceptance and Commitment Therapy and Meta Cognitive Treatment on Improvement of the Symptoms in Women with Obsessive-Compulsive Disorder in Khorramabad City. *Middle Eastern Journal of Disability Studies*, *5*, 160-8.

Greco, L. A., Lambert, W., & Baer, R. A. (2008). Psychological inflexibility in childhood and adolescence: development and evaluation of the Avoidance and Fusion Questionnaire for Youth. *Psychological assessment*, *20*(2), 93.

Hendriks, T., Warren, M. A., Schotanus-Dijkstra, M., Hassankhan, A., Graafsma, T., Bohlmeijer, E., et al. (2018). How WEIRD are positive psychology interventions? A bibliometric analysis of randomized controlled trials on the science of well-being. J. Posit. Psychol. 14, 489–501. doi: 10.1080/17439760.2018.1484941

Henrich, J., Heine, S. J., & Norenzayan, A. (2010). Most people are not WEIRD. Nature, 466(7302), 29-29.

Hwang, W., Myers, H.F., Abe-Kim, J. & Ting, J.Y. (2008). A conceptual paradigm for understanding culture’s impact on mental health: The cultural influences on mental health (CIMH) model. Clinical Psychology Review, 28, 211-227.

\*Izadi, R., Neshatdoost, HM., Asgari, K., & Abedi, M. (2014). Comparison of the efficacy of acceptance and commitment therapy and cognitive-behavior therapy on symptoms of treatment of patients with obsessive-compulsive disorder. *Journal of Research in Behavioural Sciences*, *12*(1), 19-33.

Jacoby, R. J., Abramowitz, J. S., Buchholz, J., Reuman, L., & Blakey, S. M. (2018). Experiential avoidance in the context of obsessions: Development and validation of the Acceptance and Action Questionnaire for Obsessions and Compulsions. *Journal of Obsessive-Compulsive and Related Disorders*, *19*, 34-43.

\*Jashni, A. H., Roushan, R., & Ahadi, H. (2020) Compare the efficacy of exposure therapy and prevention of response and group acceptance and commitment therapy in reducing the severity of symptoms in patients with obsessive-compulsive disorder. *Psychological Sciences, 19*(93), 1141-1148.

Kocsis, J. H., Gerber, A. J., Milrod, B., Roose, S. P., Barber, J., Thase, M. E., ... & Leon, A. C. (2010). A new scale for assessing the quality of randomized clinical trials of psychotherapy. *Comprehensive psychiatry*, *51*(3), 319-324.

Laurito, L. D., Loureiro, C. P., Dias, R. V., Faro, L., Torres, B., Moreira-de-Oliveira, M. E., . . . Davis, C. H. (2022). Acceptance and Commitment Therapy for obsessive compulsive disorder in a Brazilian context: Treatment of three cases. *Journal of Contextual Behavioral Science, 24*, 134-140.

\*Maleki Pirbazari, M., Narimani, M., Mikaeili, N., & Abolghasemi, A. (2021). Effectiveness of Acceptance and Commitment Therapy on Improving Symptoms and Increasing Quality of Life in Patients with Obsessive-compulsive Disorder in Interacting with OCD Family History. *Journal of Modern Psychology*, *1*(1), 37-50.

Munn, Z., Peters, M. D., Stern, C., Tufanaru, C., McArthur, A., & Aromataris, E. (2018). Systematic review or scoping review? Guidance for authors when choosing between a systematic or scoping review approach. *BMC medical research methodology, 18*(1), 1-7.

\*Narimani, M., Maleki Pirbazari, M., Michaeli., N., & Abolghasemi., A. (2017). A comparison of the effectiveness of exposure and response prevention therapy and acceptance and commitment therapy in reducing the obsessions and compulsions of patients. *Journal of Research in Behavioural Sciences*, *14*(4), 415-420.

Ong, C. W., Blakey, S. M., Smith, B. M., Morrison, K. L., Bluett, E. J., Abramowitz, J. S., & Twohig, M. P. (2020). Moderators and processes of change in traditional exposure and response prevention (ERP) versus acceptance and commitment therapy-informed ERP for obsessive-compulsive disorder. *Journal of Obsessive-Compulsive and Related Disorders, 24*, 100499.

Ong, C. W., Petersen, J. M., Terry, C. L., Krafft, J., Barney, J. L., Abramowitz, J. S., & Twohig, M. P. (2022). The “how” of exposures: Examining the relationship between exposure parameters and outcomes in obsessive-compulsive disorder. *Journal of Contextual Behavioral Science, 24*, 87-95.

Ong, C. W., Sheehan, K. G., & Haaga, D. A. (2023). Measuring ACT in context: Challenges and future directions. *Journal of Contextual Behavioral Science*.

Philip, J., & Cherian, V. (2021). Acceptance and commitment therapy in the treatment of Obsessive-Compulsive Disorder: A systematic review. *Journal of Obsessive-Compulsive and Related Disorders, 28*, 100603.

Philip, J., & Cherian, V. (2022). Acceptance and Commitment Therapy in Obsessive–Compulsive Disorder: A Case Study. *Indian Journal of Psychological Medicine, 44*(1), 78-82.

\*Rajabi, F., Hasani, F., Keshavarzi Arshadi, F., & Emamipour, S. (2020). Effectiveness of Acceptance and Commitment Therapy on Symptoms of Obsessive-Compulsive Disorder and Guilt Feeling in Patients with Obsessive-Compulsive Disorder. *Iranian Journal of Rehabilitation Research*, *6*(2), 140-147.

Reid, A. M., Garner, L. E., Van Kirk, N., Gironda, C., Krompinger, J. W., Brennan, B. P., . . . André, M. C. (2017). How willing are you? Willingness as a predictor of change during treatment of adults with obsessive–compulsive disorder. *Depression and anxiety, 34*(11), 1057-1064.

\*Rohani, F., Rasouli-Azad, M., Twohig, M. P., Ghoreishi, F. S., Lee, E. B., & Akbari, H. (2018). Preliminary test of group acceptance and commitment therapy on obsessive-compulsive disorder for patients on optimal dose of selective serotonin reuptake inhibitors. *Journal of obsessive-compulsive and related disorders*, *16*, 8-13.

Soondrum, T., Wang, X., Gao, F., Liu, Q., Fan, J., & Zhu, X. (2022). The Applicability of Acceptance and Commitment Therapy for Obsessive-Compulsive Disorder: A Systematic Review and Meta-Analysis. *Brain Sciences*, *12*(5), 656.

\*Shabani, M. J., Mohsenabadi, H., Omidi, A., Lee, E. B., Twohig, M. P., Ahmadvand, A., & Zanjani, Z. (2019). An Iranian study of group acceptance and commitment therapy versus group cognitive behavioral therapy for adolescents with obsessive-compulsive disorder on an optimal dose of selective serotonin reuptake inhibitors. *Journal of Obsessive-Compulsive and Related Disorders*, *22*, 100440.

Twohig, M. P., Abramowitz, J. S., Smith, B. M., Fabricant, L. E., Jacoby, R. J., Morrison, K. L., . . . Ledermann, T. (2018). Adding acceptance and commitment therapy to exposure and response prevention for obsessive-compulsive disorder: A randomized controlled trial. *Behaviour research and therapy, 108*, 1-9.

Twohig, M. P., Hayes, S. C., & Masuda, A. (2006). Increasing willingness to experience obsessions: Acceptance and commitment therapy as a treatment for obsessive-compulsive disorder. *Behavior therapy*, *37*(1), 3-13.

Twohig, M. P., Hayes, S. C., Plumb, J. C., Pruitt, L. D., Collins, A. B., Hazlett-Stevens, H., & Woidneck, M. R. (2010). A randomized clinical trial of acceptance and commitment therapy versus progressive relaxation training for obsessive-compulsive disorder. *Journal of consulting and clinical psychology*, *78*(5), 705.

Twohig, M.P. & Levin M.E. (2017). Acceptance and commitment therapy as a treatment for anxiety and depression: A review. *Psychiatric Clinics, 40*, 751-770.

Twohig, M. P., Abramowitz, J. S., Bluett, E. J., Fabricant, L. E., Jacoby, R. J., Morrison, K. L., ... & Smith, B. M. (2015a). Exposure therapy for OCD from an acceptance and commitment therapy (ACT) framework. *Journal of obsessive-compulsive and Related Disorders*, *6*, 167-173.

Twohig, M. P., Vilardaga, J. C. P., Levin, M. E., & Hayes, S. C. (2015). Changes in psychological flexibility during acceptance and commitment therapy for obsessive compulsive disorder. *Journal of Contextual Behavioral Science, 4*(3), 196-202.

\*Vakili, Y., Gharraee, B., Habibi, M., Lavasani, F., & Rasoolian, M. (2013). The comparison of acceptance and commitment therapy with selective serotonin reuptake inhibitors in the treatment of obsessive-compulsive disorder. *Zahedan Journal of Research in Medical Sciences*, *16*(10).

Woidneck, M. R., Pratt, K. M., Gundy, J. M., Nelson, C. R., & Twohig, M. P. (2012). Exploring cultural competence in acceptance and commitment therapy outcomes. *Professional Psychology: Research and Practice, 43*(3), 227.

\*Yarahmadi, M., Oraki, M., Saadat, S. H., Eshaghian, M., & Momeni, A. (2018). The effectiveness of acceptance and commitment therapy (ACT) on distress tolerance and the severity of obsessive-compulsive symptoms. *Shenakht Journal of Psychology and Psychiatry*, *7*(6), 66-79.

\*Zahiri, S., Dehghani, A., & Izady, R. (2018). The Effectiveness of Acceptance and Commitment Therapy (ACT) enriched with Compassion Focus Therapy (CFT) for high school males obsession with obsessive-compulsive disorder. *Journal of Psychological Studies*, *13*(4), 93-108.

\*Zemestani, M., & Mozaffari, S. (2020). Acceptance and commitment therapy for the treatment of depression in persons with physical disability: a randomized controlled trial. *Clinical Rehabilitation*, *34*(7), 938-947.

Table 1. *Main outcomes for ACT for OCD RCTs*

|  |  |  |
| --- | --- | --- |
| Trial | N; M Age (SD), Conditions | OCD outcome M (SD); Condition differences  |
| Vakili et al., 2013 | N=32; M age=26.96 (6.83); ACT, ACT +SSRI, SRRI-alone;  | Y-BOCS: ACT=Pre: 23.86 (2.57) Post: 14 (4.55), ACT +SSRI=Pre: 24.10 (3.69) Post: 13.80 (3.85); SSRI-alone=Pre: 25.63 (2.44) Post: 19.88 (3.68); ACT = ACT +SSRI > SSRI alone |
| Baghooli et al., 2014 | N=90; M age= 27.96 (6.07); ACT, ACT+ SSRI, SSRI-alone | Y-BOCS: ACT Pre: 24.96 (3.96) Post: 14.12 (3.02) Follow-up: 11.48 (2.42); ACT +SSRI Pre: 25.68 (4.14) Post: 15.84 (2.79) Follow-up: 13.12 (1.99); SSRI-alone Pre: 25.48 (3.62) Post: 17 (3.59) Follow-up: 14.28 (3.54); ACT = ACT+SSR > SSRI-alone |
| Izadi et al., 2014 | N=38; M age= 31.97 (7.16); ACT, CBT, WL;  | Y-BOCS: ACT Pre: 21 (7.23) Post: 17.53 (1.47) Follow-up: 18.01 (1.47); CBT Pre: 27.07 (5.28) Post: 16.58(1.59) Follow-up: 17.01 (1.48); WL Pre: 26.91 (4.20) Post: 25.36 (1.56) Follow-up: 26.86 (1.54); Post: ACT> CBT > Waitlist; Follow-up: ACT = CBT > Waitlist |
| Esfahani et al., 2015 | N= 60; M age= not reported; ACT, NT, TPT, Control;  | Y-BOCS: ACT Pre: 28.53 (3.70) Post: 13.73 (1.43) Follow-up: 15.86 (2.29); NT Pre: 23.93 (3.59) Post: 18.26 (3.63) Follow-up: 18.66 (3.57); TPT Pre: 31.73 (2.96) Post: 28.13 (3.92) Follow-up: 31.2 (3.21); Control Pre: 27.86 (5.34) Post: 27.73 (4.96) Follow-up: 27.6 (4.71); ACT = NT > TPT= Control |
| Ghazanfari et al., 2015 | N= 45; M age= not reported; ACT, MCT, WL;  | MOCI: ACT Pre: 21.86 (1.50)Post: 18.60 (1.12); MCT Pre: 21.13 (1.45) Post: 19.01 (1.51); WL Pre: 20.66 (1.63) Post: 20.53 (1.24); ACT = MCT > Waitlist |
| Narimani et al., 2017 | N=45; M age= 28.13 (7.38); ACT, ERP, WL;   | Y-BOCS: Obsessions ACT Pre:15.07 (2.28) Post:12 (2.44); ERP Pre:14.93 (2.43) Post: 12.80 (2.75); WL Pre: 15.20 (2.98) Post: 14.80 (2.21); Y-BOCS Compulsion ACT Pre: 12.53 (1.84) Post: 9.60 (1.68) ERP Pre: 12.20 (1.74) Post: 10 (1.92); Waitlist Pre: 14.80 (2.65) Post: 14.73 (2.12); ACT > ERP > Waitlist   |
| Rohani et al., 2018 | N= 32; M age= 27.91 (7.26); ACT+SSRI, SSRI-alone;  | Y-BOCS: ACT + SSRI Pre: 22.62 (3.07) Post: 13.50 (5.53) Follow -up: 6.50 (4.31) SSRI Pre: 21.25 (4.18) Post: 17.56 (4.33) Follow-up: 14.62 (4.08); ACT +SSRI > SRRI-alone |
| Zahiri et al., 2018 | N =60; Age range 15-18; ACT+ Compassion Therapy, WL;  | Y-BOCS: ACT + Compassion Therapy Pre: 34.73 (1.94) Post: 30.93 (2.31) Follow-up: 29.54 (3.32) WL Pre: 35.40 (2.64) Post: 35.93 (2.60) Follow-up: 35.59 (3.45); ACT + Compassion Therapy > WL |
| Azad et al., 2019 | N=30; M age= 12.96 (3.10); ACT, WL;  | MOCI: ACT Pre: 17.86 (3.73) Post: 13.13 (2.35) Follow-up: 11.46 (3.12); WL Pre: 18.06 (3.71) Post: 18.33 (3.95) Follow-up: 18 (3.32); ACT > Waitlist |
| Shabani et al., 2019 | N= 69; M age= 14.96 (1.47); ACT+SSRI, CBT+SSRI, SSRI-alone;  | CY-BOCS: ACT+SSRI Pre: 23.86 (4.06) Post: 16.85 (3.91) Follow-up: 13.18 (2.86); CBT+SSRI Pre 24.68 (4.57) Post: 16.47 (2.04); Follow-up: 13.56 (3.24); SSRI Pre: 24.44 (20.72) Post: 20.72 (3.71) Follow-up: 18.77 (2.98); ACT + SSRI = CBT + SSRI > SSRI |
| Borghei et al., 2020 | N= not available; Age range: 18-40; ACT, Islamic Spirituality Therapy; WL;  | DPSS-R: ACT Pre: 28.26 (3.95) Post: 20.73 (2.28) Follow-up: 20.80 (2.28) IST Pre: 28.33 (3.05)Post: 28.20 (3.83) Follow-up: 18.40 (3.60); WL Pre: 27.93 (4.09) Post: 27.93 (4.28) Follow-up: 28.06 (3.86); IST > ACT > WL |
| Jashni et al., 2020 | N= 60; Age range= 18-50; ACT, ERP, WL;  | MOCI Cleaning: ACT Pre: 30.35 (3.15) Post: 24.47 (2.15); ERP Pre: 30.70 (4.13) Post: 21.53 (3.180); WL Pre: 30.35 (3.01)Post: 28.83 (3.43); CheckingACT Pre: 38.40 (2.90) Post: 22.76 (2.88); ERP Pre: 37.85 (3.09) Post: 19.39 (1.86); WL Pre: 38.05 (3.30) Post: 29.01 (3.88) Doubting ACT Pre: 47.10 (5.73) Post: 29.29 (4.13); ERP Pre: 46.30 (5.58) Post: 40.24 (3.13); WL Pre: 48.01 (5.80) Post: 33.88 (9.03); Impulse control ACT Pre: 42.15 (5.43) Post:26.14 (2.55); ERP Pre: 43.20 (5.97) Post: 22.73 (3.69); WL Pre: 42.10 (5.80) Post: 35.01 (4.43); ERP > ACT >WL |
| Rajabi et al., 2020 | N= 30; Age range= 25-40; ACT, WL;  | Padua Inventory: ACT Pre: 139.93 (8.61) Post: 125.27 (7.95) Follow-up: 125.07 (7.78); Waitlist Pre: 141.40 (7.45) Post: 142.00 (7.05) Follow-up: 142.13 (7.03); ACT > WL |
| Yarahmadi et al., 2020 | N= 20; M age= 27.1 (5.87); ACT, WL;  | Y-BOCS: ACT Pre: 25.10 (5.46) Post: 9.80 (3.48); WL Pre: 26.30 (5.75) Post: 29.30 (5.75); ACT > WL |
| Zemestani et al., 2020 | N= 38; M age= 35.69 (9.34);  | Y-BOCS: ACT+SSRIs Pre: 27.46 (3.97) Post: 12.07 (2.81) Follow-up: 11.69 (2.32; ERP+SSRIs Pre: 26.18 (3.84) Post: 13.09 (1.92) Follow-up: 13.90 (1.81); SSRI Pre:25.13 (4.80) Post: 21.40 ACT+ SSRI, ERP+SSRI, SSRI; (3.99) Follow-up: 23.0 (4.51); ACT + SSRI = ERP + SSRI > SSRI alone |
| Maleki-Pirbazari et al., 2021 | N= 60; M age= 33.13; ACT + family history, ACT w/o family history, Control + family history, Control w/o family history;  | Y-BOCS: ACT + family history Pre:30.20(2.80) Post: 18.80(1.82) Follow-up: 19.07 (1.83) Control + family history Pre: 29.27 (8.05) Post: 29.53 (7.35) Follow-up: 29.87 (6.76); ACT w/o family history Pre: 30.80 (2.48)Post: 21.87 (2.32) Follow-up: 22.40 (2.69); Control w/o family history Pre: 29.60 (4.96) Post: 29.80 (4) Follow-up: 30.07 (4.78); ACT + family history = ACT w/o family history > control +family history = control w/o family history  |
|  |  |  |
| Dehaghi et al., 2022 | N=; M age 33.54; ACT vs. Religion-adapted ACT | Y-BOCS: Religion-adapted ACT; Pre:24.33 (6.83), post: 13.72 (7.01); follow-up: 11.70 (6.38). ACT group; pre:20.00(7.59); post: 18.29(7.27); 14.23(7.70).  |
|  |  |  |
| Derakhtkar et al., 2022 | N=; M age 28.2; ACT, CBT, Metacognitive therapy (MCT); Mindfulness integrated CBT vs. waitlist  | Y-BOCS: CBT; Pre: 26.14 (1.68); Post: 14.07 (2.14); Follow-up:20.23 (1.32). ACT; Pre: 27.25 (3.41); Post: 15.46 (3.41); Follow-up: 15.08 (2.29). MCT; Pre: 27.75 (3.46), Post: 15.64 (2.91), Follow-up: 21.81 (4.32). MiCBT; Pre: 26.23 (2.84), Post: 13.20 (1.99), Follow-up: 13.24 (2.12). Control; Pre: 25.36 (4.62), Post: 25.92 (3.08), Follow-up: 24.17 (4.02) |
|  |  |  |

*Note*: Y-BOCS=Yale-Brown obsessive-compulsive scale, MOCI=Maudsley obsessional compulsive inventory, The Disgust Propensity and Sensitivity Scale-Revised, TPT=perspective therapy, NT=narrative therapy; MCT=Metacognitive therapy; MiCBT=Mindfulness integrated CBT.