

## Short Communication

# An Overview of Reviews on the Effects of Acceptance and Commitment Therapy (ACT) on Depression and Anxiety

Zahra Beygi<sup>1</sup>, Reyhane Tighband Jangali<sup>2</sup>, Nafiseh Derakhshan<sup>3</sup>, Mina Alidadi<sup>4</sup>, Farzane Javanbakhsh<sup>1</sup>, Mahdiah Mahboobizadeh<sup>1\*</sup>

### Abstract

**Objective:** Emotional disturbances are the most common mental health problems in different populations and societies. We intend to provide the latest evidence related to the effectiveness of Acceptance and Commitment Therapy (ACT) on depression and anxiety by reviewing systematic review and meta-analysis studies published in the last three years.

**Method:** PubMed and Google Scholar databases were systematically searched between January 1, 2019 and November 25, 2022 with relevant keywords for English systematic review and meta-analysis articles reviewing the utilization of ACT to reduce anxiety and depression symptoms.

**Results:** 25 articles were included in our study: 14 systematic review and meta-analysis studies and 11 systematic reviews. These studies have investigated the effects of ACT on depression and anxiety in populations of children or adults, mental health patients, patients with different cancers or multiple sclerosis, people with audiological problems, parents or caregivers of children with mental or physical illnesses as well as normal people. Furthermore, they have examined the effects of ACT in individual, group, Internet, computerized, or combined delivery formats. Most of the reviewed studies reported significant effect sizes (small to large effect sizes) of ACT, regardless of the delivery method, compared to passive (placebo, waitlist) and active (treatment as usual and other psychological interventions except cognitive behavioral therapy (CBT)) controls for depression and anxiety.

**Conclusion:** Recent literature mainly agrees on the small to moderate effect sizes of ACT on depression and anxiety symptoms in different populations.

**Key words:** *Acceptance and Commitment Therapy; Anxiety; Depression; Systematic Review*

1. Faculty of Humanities, Department of Clinical Psychology, Islamic Azad University of Sirjan, Sirjan, Iran.
2. Faculty of Humanities, Department of Clinical Psychology, Anar Islamic Azad University, Kerman, Iran.
3. Department of Psychology and Educational Sciences, University of Allameh Tabatabaei, Tehran, Iran.
4. Department of Clinical Psychology, Bam University of Medical Sciences, Bam, Iran.

### \*Corresponding Author:

Address: Faculty of Humanities, Department of Clinical Psychology, Islamic Azad University of Sirjan, Kerman Province, Sirjan, Iran, Postal Code: 7818813955.

Tel: 98-34 41523000, Fax: 98-34 41523001, Email: mahbobimahdiah@gmail.com

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**E**motional disturbances are the most common mental health problems in different populations and societies (1). In particular, depression and anxiety affect the quality of life of many people worldwide and impose a heavy burden on health care systems, with a higher prevalence among women and a high comorbidity of both conditions (2-5). This situation has worsened during the coronavirus pandemic, and the literature has reported a much higher prevalence of anxiety and depression in different populations after the global spread of the coronavirus (6-8). However, evidence suggests that only a small number of patients with these disorders receive minimally appropriate therapeutic services (9, 10). Therefore, major health care institutions have declared the urgent need for various national programs to promote access to effective treatments for depression and anxiety (11). Acceptance and Commitment Therapy (ACT) has been shown to be an effective intervention in the treatment of depression and anxiety (12). ACT is one of the modern psychological treatments known as a third wave psychotherapy that emphasizes the role of individuals' psychological resources in facing stressful events and believes that these resources can provide the necessary treatment measures in order to improve the conditions of people under pressure (13). It is based on functional contextualism theory. According to this theory, no thoughts, memories and feelings are intrinsically problematic; rather, they are completely conditioned by and dependent on the context in which the trauma happened (14). ACT attempts to improve psychological flexibility by enhancing six key skills: acceptance (experiencing unpleasant and pleasant memories and ideations instead of avoiding or controlling them), living in the present moment (being mindful of feelings, senses and various actions in any moment), defusion (moving backward and viewing thoughts as representations of thought processes, observing these processes as what they are and not as a literal truth), observing self as context (establishing a wide outlook on feeling and thinking and adopting an observant, non-evaluative self), determining values (elucidating and determining basic goals and values to follow significant works), and taking committed actions (taking efficacious actions directed by values) (15, 16). In other words, ACT improves psychological flexibility through different practices including metaphor, mindfulness, value clarification, and engaging in actions committed to clarified values. According to the functional analysis of behavior, these practices can be helpful if they result in triggering a new behavioral pattern that commits individuals to valued things in their life (17).

The literature shows that ACT is an effective treatment for a variety of problems, including depression and anxiety, in comparison to psychotherapy and psychopharmacology in different populations. Evidence suggests that clinical improvement is rooted in improved

psychological flexibility (18). Indeed, this evidence supports a strong correlation between indices of psychological flexibility and depression and anxiety. A meta-analysis study revealed that ACT had a moderate between-group effect, but a large within-group effect, on depressive and anxiety symptoms in clinical and non-clinical populations compared to waitlist controls (19). However, there are still doubts regarding the individual or group use of this method, its effectiveness on specific populations such as children, its online delivery, and its superiority over conventional methods such as cognitive behavioral therapy (CBT). Therefore, in this article, we intend to provide the latest evidence related to the effectiveness of ACT on depression and anxiety by reviewing systematic review and meta-analysis studies published in the last three years.

## Materials and Methods

Here, we aim to present the current status of ACT interventions in clinical settings for depression and anxiety by reviewing recent systematic review and meta-analysis studies. For this purpose, PubMed and Google Scholar databases were systematically searched between January 1, 2019 and November 25, 2022 with relevant keywords including "ACT," "depression," "anxiety," "systematic review," and "meta-analysis." After the systematic search, we performed a manual journal search of three relevant main journals to identify possible missing articles. In addition, reference lists of eligible studies were screened to retrieve any relevant articles. After removing duplicate studies, the screening process was conducted by examining the titles and abstracts. In the next step, the entire text of relevant articles was examined by two researchers independently. Consensus was used to decide on disagreements. English-language articles with a systematic review or meta-analysis methodology published in peer-reviewed journals that examined the effects of ACT on depression and anxiety symptoms were included in our study. The quality assessment of eligible studies was done through Assessing the Methodological Quality of Systematic Reviews 2 (AMSTAR 2). It is a reliable instrument consisting of 16 items used to assess PICO, study selection criteria, data extraction and statistical analysis approaches in systematic reviews (20). Finally, the important information of each study such as study objective, search strategy, reviewed studies and main findings were extracted and reported.

## Results

As shown in Figure 1, our search yielded 630 citations. The screening process resulted in the retrieval of 33 articles for full text review. Of these, three articles lacked a systematic review or meta-analysis methodology and five articles did not examine the effects of ACT on anxiety or depression. Therefore, 25 articles were included in our study: 14 systematic review and meta-analysis studies (21-34) and 11 systematic

reviews (35-45). Details of included articles are shown in Table 1. All studies were of moderate to high quality. These studies have investigated the effects of ACT on depression and anxiety in populations of children (26, 29, 36, 45) or adults, mental health patients (23, 28, 30, 38, 40, 41, 44), patients with different cancers or multiple sclerosis (25, 31, 34, 37, 42), people with audiological problems (32), parents or caregivers of

children with mental or physical illnesses (22, 24, 26, 39) as well as normal people. Most of the findings of these studies have been reported by comparing ACT effects with waiting list control groups, treatment as usual and CBT. These studies have examined the effects of ACT in individual, group, Internet, computerized, or combined delivery formats.

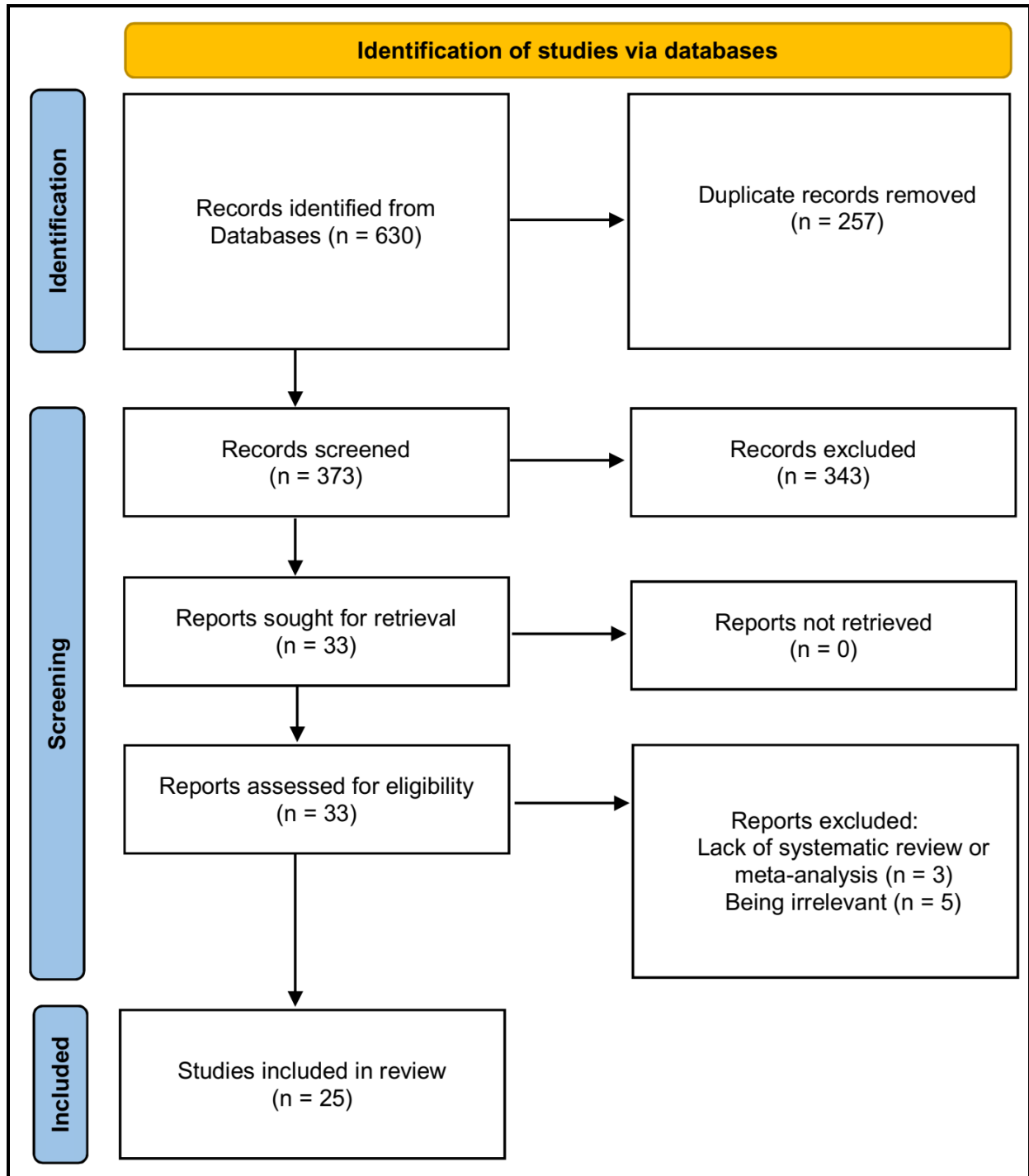


Figure 1. Flowchart and Process for Identifying, Screening, and Evaluating the Eligibility of Studies on Acceptance and Commitment Therapy (ACT) for Depression and Anxiety

**Table 1. Details of the Included Systematic Review and Meta-Analysis Articles Regarding the Effectiveness of Acceptance and Commitment Therapy on Depression and Anxiety**

Author (year) Type of study	Aim of study	Searched databases	Included studies	Main conclusion
Kelson et al. (2019) Systematic review	Investigating the effectiveness of internet-delivered ACT on anxiety conditions	ProQuest, MEDLINE, EMBASE, PsychINFO, Web of Science and Scopus databases were searched up to September 2018	20 studies including 11 RCTs and 9 open-label trials	Internet-delivered ACT can be an effective intervention for adults with generalized anxiety disorder and general anxiety symptoms; internet-delivered ACT approach achieved an average to high treatment satisfaction.
Stockton et al. (2019) Systematic review	Investigating the ACT mediation evidence by reviewing mediation researches	PsychINFO, Medline and Web of Science were searched between 2006 and 2015	12 RCT studies	Mediation findings are in line with the psychological flexibility model, with strong evidence for acceptance as a unique mechanism of change during ACT.
Fang and Ding (2020) Systematic review and meta-analysis	Investigating the efficacy of ACT for children	Web of Science, Cochrane Library, PubMed, PsychINFO and ProQuest were searched up to August 2018	14 studies	ACT significantly improved the symptoms of depression and anxiety compared to treatment as usual and waitlist controls without superiority over traditional CBT.
Gloster et al. (2020) Systematic review	Investigating the meta-analytic evidence on ACT	Web of Science, Ovid Medline, PsycArticles and PsychINFO were searched up to August 2019	20 meta-analysis studies	ACT is an effective treatment for depression and anxiety and is superior to waitlist controls, treatment as usual, and most active interventions (except CBT).
Bai et al. (2020) Systematic review and meta-analysis	Investigating the efficacy of ACT on depressive symptoms	CNKI, WANFANG, PubMed, EMBASE, Cochrane Library and PsychINFO were searched between 2010 and 2018	18 studies	ACT is an effective treatment for alleviating depressive symptoms compared to the control group, especially at the three-month follow-up, in the adult and mildly depressed groups.
Jansen et al. (2020) Systematic review and meta-analysis	Investigating the efficacy of acceptance- and mindfulness-based therapies for patients with psychotic or schizophrenia spectrum disorders	Web of Science, Medline/Pubmed and PsychINFO were searched up to 2018	16 studies including 8 ACT-based studies	Small to moderate effect sizes on depression were reported, while no significant effects on anxiety were found.
Coto-Lesmes et al. (2020) Systematic review	Investigating the effectiveness of group-based ACT on depression and anxiety symptoms	Web of Science was searched between 2008 and 2019	15 studies including 10 RCTs, 4 open-label trials and 1 case study	Group-based ACT is an effective treatment for depression and anxiety compared to control groups (except CBT).

Harris and Samuel (2020) Systematic review	Investigating the effectiveness of ACT for child and adolescent mental well-being	Web of Science, PubMed and Scopus were searched up to 2019	10 studies	Most studies found that after an ACT treatment mental health symptoms including depression and anxiety alleviated and psychological flexibility increased. Meanwhile, results reveal that other active treatments also resulted in similar improvements.
Yıldız (2020) Systematic review	Investigating the efficacy of ACT for the treatment of psychotic disorders	ScienceDirect, Cochrane Library, PsychINFO, Medline, and PubMed were searched up to 2018	11 RCT studies	ACT is effective on anxiety, depression, and hallucination symptoms observed in psychotic illnesses.
Li et al. (2021) Systematic review and meta-analysis	Investigating the efficacy of ACT for cancer patients with mental disorders	English-language (PubMed, MEDLINE, Web of Science, Embase, the Cochrane Library, and PsychINFO) and Chinese-language (Wanfang, CBM, CNKI, and VIP) databases were searched up to 2020	17 RCTs	ACT was found to be associated with improved symptoms following intervention and at one to three months and at three to six months of follow-up for depression. After six months of follow-up, depression and anxiety were still significantly improved.
Li et al. (2021) Systematic review and meta-analysis	Investigating the effectiveness of ACT on psychological status in patients with breast cancer	MEDLINE, PsychInfo, Web of Science, Embase, CNKI and CINAHL were searched up to 2019 and AMED, Cochrane Library, and Clinical trials.gov were searched up to 2020	13 studies	ACT had moderate to large effect sizes on alleviating depression and anxiety.
Byrne et al. (2021) Systematic review	Investigating the efficacy of ACT on parents with child presenting difficulties	Web of Science, Scopus, Medline, and PsychInfo were searched up to January 2020	27 studies including 10 RCTs, 14 within-group studies, 2 between-group studies and 1 study with multiple baseline design	Most of the reviewed studies showed improvements in either parent-reported symptoms of child mental or physical functioning, and also parent-reported symptoms of depression, anxiety, and stress. These findings were significant for parents of children with chronic pain, neurodevelopmental disorders, and major physical health problems.
Thompson et al. (2021) Systematic review and meta-analysis	Investigating the efficacy of internet-based ACT on depression, anxiety, psychological flexibility and quality of life among people with somatic or psychological problems, or undiagnosed conditions	Web of Science, MEDLINE, Embase, ProQuest, PsychINFO, and PubMed were searched between 2009 and 2019	25 studies	Interventions with a therapist's guidance showed larger effectiveness in improving depressive symptoms and psychological flexibility compared to internet-based ACT with no therapist's guidance. People with a mental problem showed better improvements in anxiety symptoms compared to somatic or non-clinical people.

Li et al. (2021) Systematic review	Investigating the effectiveness of ACT on psychological and physical outcomes of patients with advanced cancer	British Nursing Index, PubMed, Medline, PsychINFO, CINAHL, EMBASE, Cochrane Central, China National Knowledge Infrastructure and Wanfang were searched up to 2019	6 studies including 5 RCTs and 1 open-label trial	ACT can be an effective treatment to improve depressive symptoms and anxiety in patients with advanced cancer. Intervention protocols with at most four sessions had large adherence rates.
Han et al. (2021) Systematic review and meta-analysis	Investigating the effects of ACT on mental health outcomes of family caregivers	PubMed, CINAHL, PsychINFO, and Scopus were searched up to 2020	24 studies including 12 RCTs and 13 open-label trials	Meta-analyses found moderate effects of ACT on depressive symptoms and small effects of ACT on anxiety.
Parmar et al. (2021) Systematic review and meta-analysis	Investigating the effects of ACT on psychological well-being in children with special health care needs and their parents	PubMed, Web of Science, Ovid/Embase and PsychINFO were searched between 2000 and 2021	10 studies	There is some evidence that ACT may help with depressive symptoms in children with special health care needs and psychological inflexibility in their parents.
Mathew et al. (2021) Systematic review	Investigating the effects of ACT on psychological outcomes of adult cancer survivors	Web of Science, CINAHL, Ovid MEDLINE, PsychInfo, Scopus, Google Scholar, Embase, and Cochrane were searched up to 2019	13 studies	ACT was effective in alleviating depression and anxiety symptoms and in improving psychological flexibility.
Chua and Shorey (2021) Systematic review and meta-analysis	Investigating the effects of standardized acceptance- and mindfulness-based treatments on psychological well-being among parents of children with developmental disabilities	Web of Science, Embase, PubMed, CINAHL, PsychINFO, and ProQuest were searched between 2014 and 2020	10 RCT studies including 4 ACT-based studies	ACT-based treatment was effective in reducing parental depression, anxiety and stress.
Haller et al. (2021) Systematic review and meta-analysis	Investigating the effects of standardized acceptance- and mindfulness-based treatments on different anxiety disorders	PubMed, PsychInfo, and Scopus were searched up to 2021	23 studies	ACT had similar effects to CBT on the anxiety conditions. Analyses of up to 6 and 12 months of follow up did not show significant differences compared to treatment as usual or CBT. Effects on depression showed similar trends.
Gomes Ferreira et al. (2022) Systematic-review and meta-analysis	Investigating the effects of group-based ACT on anxiety and depression symptoms in adults	LILACS, PubMed, Scopus and PsychINFO were searched up to 2021	48 RCTs	Moderate to large effect sizes were found for alleviating anxiety symptoms, whereas small to moderate effect sizes were found for alleviating depression symptoms. ACT may be more effective for depression in comparison to other known therapies (e.g., CBT).

Caletti et al. (2022) Systematic-review	Investigating the efficacy of ACT for social anxiety	PubMed, EMBASE and Scopus were searched up to 2022	11 studies	ACT can be effective to treat social phobia through improving emotion regulation, awareness, attentional biases and avoidance behaviors. However, its superiority over CBT has not yet been proven.
Wang et al. (2022) Systematic review and meta-analysis	Investigating the efficacy of third-wave interventions including ACT for psychological well-being in people with audiological problems	PubMed, Web of Science, Ovid/Embase and PsychINFO were searched up to 2021	15 studies including 6 ACT-based studies	ACT significantly improves depression and anxiety at post-intervention.
Sun et al. (2022) Systematic review and meta-analysis	Investigating the most efficient delivery approach for ACT to treat depression using a network meta-analysis	Embase, Pubmed, CINAHL, Cochrane library, PsychINFO, CNKI, and Wangfang were searched up to 2021	23 studies	All group, individual, and internet intervention approaches seemed to be efficient treatments.
Thompson et al. (2022) Systematic review and meta-analysis	Investigating the efficacy of ACT on quality of life and mood for patients with multiple sclerosis	Web of Science, MEDLINE, Scopus, PsychINFO, Embase, CINAHL, and ContextualScience.org were searched up to 2022	6 studies	ACT was not effective in alleviating depression and anxiety in these patients. However, it had a small effect size on decreasing stress for patients with multiple sclerosis.
Knight and Samuel (2022) Systematic review	Investigating the effectiveness of ACT treatments in secondary schools	Web of Science, PsychInfo and Scopus were searched up to 2022	9 studies	ACT may be a good school-based treatment to reduce depression and anxiety among students aged 13 to 21 years.

ACT = acceptance and commitment therapy; RCT = randomized controlled trial.

Most of the reviewed studies reported significant effect sizes (small to large effect sizes) of ACT, regardless of delivery method, compared to passive (placebo, waitlist) and active (treatment as usual and other psychological interventions except CBT) controls for depression and anxiety. However, it should be noted that the main consensus of these articles is on the small to moderate effect sizes of ACT on depression and anxiety symptoms in different populations. Only one study reported no significant effect of ACT on depression and anxiety symptoms in patients with multiple sclerosis (34). However, it should be noted that the reviewed studies found that ACT can be effective only for depressed people with mild symptoms, not moderate or severe symptoms.

## Discussion

As evidenced by 25 systematic review and meta-analysis studies, ACT is an effective treatment for depression and anxiety in most people with different conditions. Effects of ACT were smaller compared to the active condition, and larger compared to the inactive condition, as expected. As mentioned before, according to ACT theory, improvement in psychological flexibility is the main outcome of a successful ACT treatment (15, 16). This study also revealed that psychological flexibility can improve effectively in different populations after ACT treatment completion (43), leading to reduced depression and anxiety symptoms and better well-being and functioning. However, it should be considered that these effects are typically measured by subjective questionnaires and, therefore, they can be affected by different biases. Furthermore, the findings of our study are in line with the hypothetical trans-diagnostic basis of ACT (14, 17). However, future research with good trial designs is needed to more comprehensively examine the trans-diagnostic speculations of ACT. In other words, well-designed multicenter research that concurrently investigates different types of conditions is needed to determine how ACT can be useful trans-diagnostically. In this study, we found that ACT was often not significantly superior to CBT. This observation is in line with most previous studies (23, 29, 35, 38, 46). However, there are some meta-analysis studies suggesting that ACT can be more effective than CBT (21, 47). Moreover, although we found that all delivery formats of ACT (i.e., individual-based, group-based or internet-based) can be effective in reducing depression and anxiety symptoms compared to other psychological interventions, which is consistent with a recent meta-analysis (33), future research needs to pay more attention to unique and common contexts, processes and procedures regardless of the type of experimental design. Indeed, future research should focus on various processes of change (e.g., acceptance, psychological flexibility, etc.), instead of focusing on comparative experiments investigating two different therapeutic

approaches. In addition, although most studies found ACT to be effective in improving the symptoms of anxiety and depression in children and adolescents (26, 29, 36, 45), some studies considered the available evidence to be insufficient for its effectiveness in this population (28, 40). Thus, future research with large sample sizes should focus on treating anxiety and depression symptoms in children and adolescents to determine the true effect size of ACT in this important population.

Regarding depression as a very important condition in mental health, and since ACT mainly affects mild symptoms (28), it is suggested that future studies examine the combination of this treatment with different antidepressants in order to affect moderate or severe symptoms. Furthermore, given that our findings support the effectiveness of ACT for non-clinical populations, it can be applied to non-clinical applications such as everyday life. This point is particularly important for times of crisis such as pandemics, especially the Corona pandemic, and should be taken into consideration by health care providers in order to improve the mental health of the community.

## Limitation

One of the limitations of this research is the lack of access to various scientific databases and, as a result, having to search through only two databases to find relevant articles. However, an attempt was made to minimize this limitation by searching Google Scholar, which covers most of the scientific literature, as well as gray literature. Failure to perform meta-analysis due to different settings of eligible studies is another limitation of this study.

## Conclusion

In general, ACT improves psychological flexibility, leading to alleviated depression and anxiety symptoms in different ages and different conditions, regardless of its delivery format. Moreover, the present study supports the hypothetical trans-diagnostic basis of ACT. However, the main consensus of recent literature is on the small to moderate effect sizes of ACT on depression and anxiety symptoms in different populations.

## Conflict of Interest

None.

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