

Review article

Acceptance and Commitment Therapy in group format for anxiety and depression. A systematic review

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ABSTRACT

Background: Emotional disorders, such as anxiety and depression, are one of the main causes of disability worldwide. Recent reviews suggest that Acceptance and Commitment Therapy is effective in treating emotional disorders. However, they appraise mainly individual approaches. This review aimed to analyze published studies regarding the usefulness of Acceptance and Commitment Therapy, applied on a group basis, in the treatment of anxiety and depression. **Methods:** A systematic review of the literature was conducted using the Web of Science, from 2008 to 2019. Fifteen articles fulfilled the inclusion criteria. **Results:** Those patients who received interventions based on Acceptance and Commitment Therapy showed a better emotional state and greater psychological flexibility than patients in control groups without treatment. No differences are found with Cognitive Therapy and Cognitive-Behavioral Therapy.

Limitations: the studies reviewed show limitations, principally regarding sample characteristics, study design and manner in which mechanisms responsible for changes are evaluated. **Conclusion:** Group-based Acceptance and Commitment Therapy proved to be useful in the psychological treatment of emotional disorders. However, the heterogeneity and limitations of the studies, make it impossible to determine the exact therapeutic elements, and if they are specific to the approach and procedure of this therapy. More research would be necessary to ascertain what patient and/or intervention characteristics might improve results and what the active and specific ingredients of the therapy are. This has clinical relevance because group-based interventions could be more cost-efficient, and it would help facilitate health-care decisions aimed at giving the public access to useful treatments.

1. Introduction

Emotional disorders, such as anxiety and depression, are the most prevalent mental health conditions. The latest estimations of the World Health Organization (WHO, 2017) state that 4.4% of the world's population suffer from depression and 3.6% from anxiety, with a greater prevalence amongst women. Furthermore, the coexistence of both problems is frequent, with levels of comorbidity of over 50% (Kircanski et al., 2017).

Despite the fact that these disorders are one of the main causes of disability worldwide and generate a considerable economic, social and personal cost, only a minority of sufferers receive minimally adequate treatment (Alonso et al., 2018; Thornicroft et al., 2017). In view of this fact, the main world health organizations (WHO, 2013) have expressed the need for national health systems to facilitate access to efficacious treatments.

One intervention which has proved to be useful in treating emotional disorders is Acceptance and Commitment Therapy (ACT, Hayes et al., 2006). In contrast to the traditional consideration of psychological problems as a result of a deficit or dysfunction of some psychological mechanism, ACT, as a contextual therapy, places the acquisition and maintenance of problems in the interpersonal context, in person's relationships with others and with themselves. Even though the psychological problem generates discomfort and difficulties, it is, nevertheless, the way in which people respond to their life conditions. Consequently, ACT seeks to explain and act on the functionality of the problem in the context of people's daily lives. ACT aims to increase psychological flexibility, which can be defined as the capacity to remain in contact with present-moment private experiences (body sensations, thoughts, feelings, behavioural predispositions...) without the need to avoid and/or escape from them and to adjust behaviour as the situation requires in order to pursue worthwhile goals (Hayes et al., 2006). Rigid responses to internal experiences, attempting to avoid or con-

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trol them, may provide relief in the short term but, in the long term, increase the frequency and intensity of those undesirable experiences, thereby restricting the person's life. By avoiding experiences, people at the same time distance themselves from those life conditions which are relevant for them and, consequently, from the very contingencies on which change could depend.

ACT targets psychological flexibility processes by strengthening the following six core skills: acceptance (experiencing both pleasant and unpleasant thoughts, feelings, memories and impulses instead of trying to control or avoid them), contact with the present moment (consciously engaging in any moment, being mindful of thoughts, feelings, bodily sensations, and potential actions, even during distressing experiences), defusion (stepping back and observation of thoughts as a representation of thought processes, seeing them for what they are and not as literal truths), self-as-context (developing a broad perspective on thinking and feeling and a nonevaluative, observing self), values (clarifying and defining fundamental values and goals to pursue meaningful work), and committed action (taking effective action guided by values).

ACT promotes psychological flexibility by means of various procedures, these being characterized by the use of experiential and attentional exercises (mindfulness), metaphors, clarification of values and the undertaking of actions committed to those values (Hayes et al., 2012). These procedures, based on an analysis of behaviour functionality, will be effective if they succeed in activating new behavioural patterns which commit the person to those things which are of value in his/her life.

In the treatment of a wide range of problems, including emotional disorders, several reviews and meta analyses show the efficacy of ACT compared to other treatments, both pharmacological and psychotherapeutic, in different populations (A-tjak et al., 2015; Hacker et al., 2016; Hayes et al., 2006; Ruiz, 2010, 2012; Swain et al., 2015; Twohig, and Levin, 2017). There is also evidence to suggest that changes in psychological flexibility are at the root of the clinical change (Bluett et al., 2014; Hayes et al., 2006; Ruiz, 2010).

In their recent metaanalysis, Hacker et al. (2016) found that ACT showed a large within-treatment effect and a moderate between-group comparison effect in anxiety and depression symptoms at posttreatment, compared with inactive control conditions. These results reached statistical sufficiency, which means that further research is unlikely to reveal different conclusions. Nevertheless, there is currently insufficient evidence to conclude that ACT is superior to existing evidence-based methods, such as cognitive behavioural therapy (CBT). They suggest that ACT and CBT could share some therapeutic techniques but more research into processes of change is needed. A-Tjak et al. (2015) found similar results across a wider range of mental or somatic health problems. ACT outperformed control conditions, waitlist, psychological placebo and treatment as usual (TAU), at posttreatment and follow-up for primary outcomes. ACT was also superior on secondary outcomes (life satisfaction, quality or process measures). The comparison of ACT with traditional CBT revealed slightly larger effect sizes for ACT, but the difference was not significant. ACT may be as effective in treating anxiety, depression and somatic health problems as established psychological interventions. Moreover, the authors suggest that further research needs to examine the processes responsible for treatment results and whether ACT may offer some potential advantages over other treatments, focusing on looking for broader changes in psychological functioning and not only for symptom reduction. Twohig, & Levin (2017), review published work on ACT for anxiety and depression disorders reaching the same conclusions as the previous meta-analysis mentioned. In addition, they found that ACT appears to improve psychological flexibility and this mediates treatment outcomes with most comparison conditions. However, based on the existing literature, the differential impact of ACT on psychological flexibility relative to CBT is inconsistent and remains unclear.

A recent review of contemporary mediation studies (Stockton et al., 2019) concluded that mediation results were found to be consistent with the psychological flexibility model but there were important research limitations. Not all six processes of the model were consistently investigated. Few studies explore the role of contact with the present moment, values or committed action and none examine self-as-context. Of the primary processes examined (psychological flexibility, cognitive defusion and acceptance), only acceptance consistently mediates different types of outcome (mental health, quality of life or functioning) and it appears to be a component which distinguishes ACT from other psychotherapies (predominantly CBT). Cognitive defusion did not consistently mediate outcomes.

Most of the studies included in the above-mentioned reviews apply ACT on an individual basis. Ruiz (2012) and Twohig and Levin (2017) analyze the comparative effects of the therapy when applied individually or in a group, finding equivalent results. Recent studies also highlight the effectiveness of ACT when applied in different formats (i.e. 1-day group workshops, online and smartphone applications and telehealth) and contexts (Dindo et al., 2017). All in all, it appears that this therapy may be an efficacious and effective alternative treatment for emotional disorders and that application on a group basis could achieve greater dissemination and effectiveness. Providing ACT in group format for the treatment of emotional disorders (anxiety and/or depression) might improve cost-benefit binomial. It can be applied to patients who present comorbidity, making it easier to offer group treatments even though participants may suffer different emotional disorders, making treatment more accessible and disseminable. However, to date, no review has been carried out regarding the efficacy and effectiveness of ACT on a group basis for emotional disorders.

Bearing in mind the high prevalence of these disorders, an analysis of the usefulness of ACT on a group basis would increase our knowledge regarding the efficacy and efficiency of these psychological interventions, and this, in turn, would help facilitate health-care decisions aimed at giving the public access to useful treatments.

The objective of this bibliographic review is to analyse studies published in the last ten years which investigated the usefulness of group ACT for anxiety and/or depression. This time period was selected due to the scarcity of studies published previously, all of which had already been included in other reviews.

2. Material and methods

There is no published review protocol; information about methodology is provided here.

2.1. Eligibility criteria

Inclusion criteria were: (1) ACT implemented as main treatment; (2) group face-to-face format; (3) use of standardized measures of general anxiety and/or depression. Exclusion criteria were: (1) preventive interventions; (2) interventions involving anxiety and/or depression in the context of other mental disorders and/or other medical or specific psychosocial problems; (3) purely qualitative studies; (4) implementation of ACT as an intervention integrated into another psychological therapy.

2.2. Sources of information and search

A search was carried out in the data bases of the Web of Science (WOS): Core Collection of the WOS, Current Contents Connect, Derwent Innovations Index, KCI-Korean Journal Database, MEDLINE, Russian Science Citation Index and SciELO Citation Index, with the key words "Acceptance and Commitment and Depression and Group" and "Acceptance and Commitment and Anxiety and Group". The search was limited to the period from 2008 to 1 March 2019 and to publications

in English or in Spanish. Those references included in the studies which might be relevant were also reviewed.

2.3. Selection of studies

Studies were screened for eligibility by two researchers and 281 relevant results were identified after eliminating duplicates. Abstracts of all identified studies were screened for eligibility and 53 full texts were inspected. Differences in decisions to include/exclude were noted and discussed until agreement was reached. Finally, 15 studies from 14 papers were included in the review. Fig. 1 shows the selection process in line with the guidelines for systematic reviews (Liberati et al., 2009).

2.4. Data collection process

Full texts were inspected by one researcher, with data extracted onto a prepared form. A second researcher checked all the data extraction reports for accuracy and completeness. Data were captured covering details of the sample (including country, sample size, participant ages, psychological difficulties assessed), intervention description (number of sessions, frequency, general description and ACT technical content such as experiential exercises or metaphors), study design, results relating to psychological outcomes, and relevant information relating to process measures or patients satisfaction when it was avail-

able. Five authors were contacted for further information but only one answer was received.

3. Results

What follows is an analysis of the designs, sample characteristics, experimental procedure, results and limitations of the 15 studies reviewed. Table 1 shows the most relevant information.

3.1. Design of included studies

Of the 15 studies, 10 are randomized controlled trials (RCTs) which include pre-post measures, seven of them also containing follow-ups. Six compare ACT to a no-intervention control group and four use cognitive therapy (CT) or CBT as a control group. Of these, only one also includes a control group with no specific intervention. Four clinical trials with no control group and one case study, which only provides pre-post measures, were also identified. All studies give some kind of analysis of statistical significance but only eight report the effect size of the change. (See Table 1).

3.2. Samples

As can be seen in Table 1, studies were carried out in different countries, four in Australia, four in the United States of America (USA), three in Iran, two in Sweden, one in Netherlands and one in the United Kingdom (UK). Samples were heterogeneous and small, from 13 to

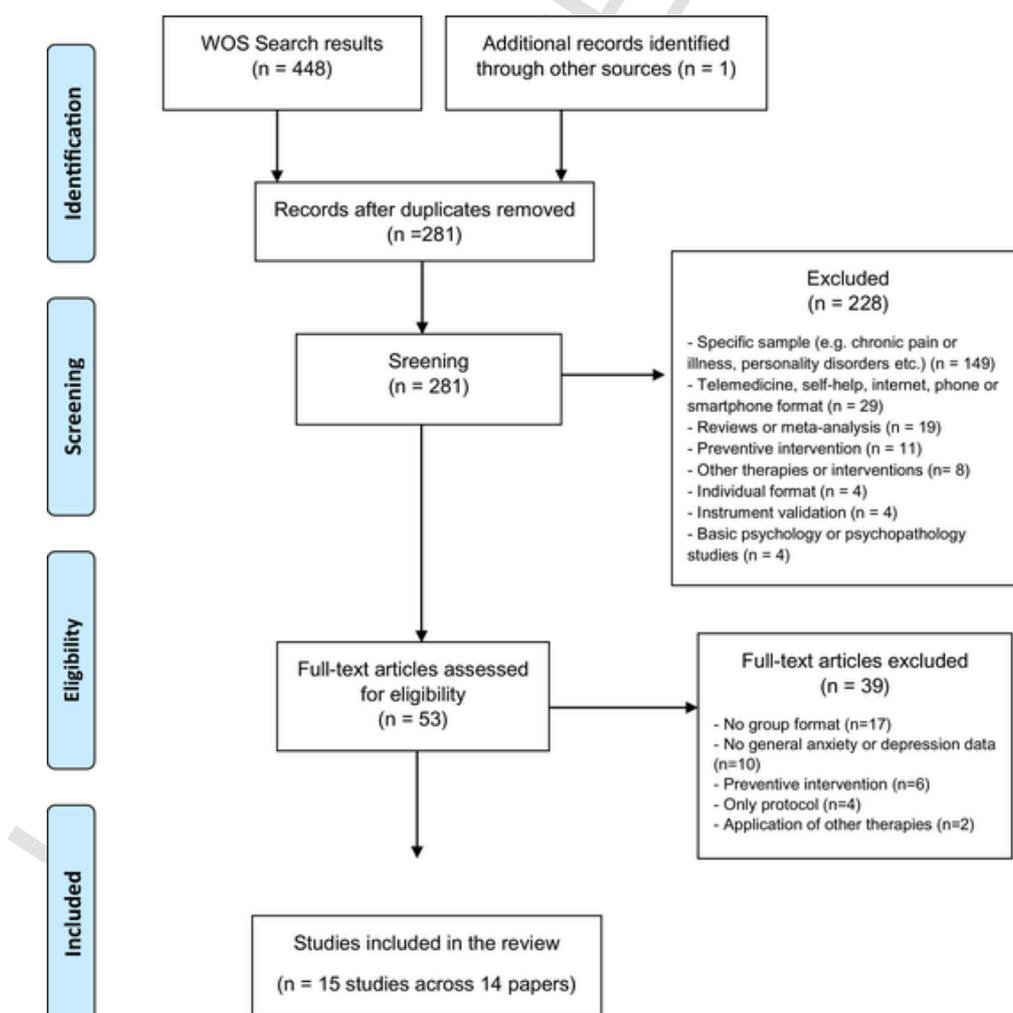


Fig. 1. Flow diagram of the selection process for the review.

Table 1

Data from the studies reviewed: group interventions based on ACT in Depression and/or Anxiety.

Study and Country	Design	Objective	Sample	Treatment conditions	Sessions (frequency, duration)	Instruments	Moments of evaluation	Results	Limitations
Avdagic et al. (2014)	RCT	To examine the relative efficacy of group ACT vs CBT for GAD	N = 51	- ACT (n = 19)	6 (weekly,	- ADIS-IV	- Pre	- ITT and PP: ACT and CBT sig. improve anxiety (Post ACT $d = 1.34$, CBT $d = 0.89$ and FU ACT $d = 2.02$, CBT $d = 1.82$) and depression (Post ACT $d = 0.89$, CBT $d = 0.87$ and FU ACT $d = 1.36$, CBT $d = 1.36$, p 's < 0.05), PSWQ, QOLI, distress and interference (d 's between 0.34 to 1.75, p 's < 0.05, maintained at FU).	- Small and well-educated sample.
			(Final 38)		2 h)	- CSRs	- Post	- ACT > CBT less distress ($\eta_p^2 = 0.147$) and interference ($\eta_p^2 = 0.109$) p 's < 0.05.	- No ADIS-IV nor CSRs at post and FU.
			Adults	-CBT (n = 19)		- PSWQ	- FU (3 months)	- ACT > CBT at PSWQ post ($d = 0.79$). RCI 78.9% ACT vs 47.4% CBT. No \neq at FU (both 60%).	- Only self-report measures.
Australia			66.7% Women			- DASS-21	- ACT and CBT sig. improve AAQ, WW-II, IUS and CAQ (p 's < 0.001). A trend of steeper change at ACT for AAQ, WW-II and IUS.	- No inactive CG.	

Table 1 (Continued)

Study and Country	Design	Objective	Sample	Treatment conditions	Sessions (frequency, duration)	Instruments	Moments of evaluation	Results	Limitations
Bohlmeijer et al. (2011)	RCT	To examine the efficacy of an early ACT group intervention for depression	N = 93	- ACT (n = 49)	GS: 4-6	- QOLI - AAQ - IUS - CAQ - WW-II - Self-reported rating of distress and interference - DUACRS - Clinical interview	Except distress and interference ratings: - Pre - Mid - Post	- IIT: ACT > WL sig. lower depression (d = 0.60), anxiety (d = 0.67) and fatigue (d = 0.52) at post, maintained at FU (d = 0.63, d = 0.56 and d = 0.49 respectively). No effect at SUA.	- Short FU. - No active CG.
				Adults	GS: M = 7	2 h)	- CES-D	- Post	- ACT > WL lower EA (AAQ-II post d = 0.59, FU d = 0.66). MA: improves at FP (AAQ-II) mediates effect on depression at FU (p < .05).
Netherlands			81.7% Women	-CG: WL (n = 44)		- HADS-A - CIS - SUA last week - AAQ-II	- FU (3 months)		- Short FU. - Only self-report measures. - No medication changes control.

Table 1 (Continued)

Study and Country	Design	Objective	Sample	Treatment conditions	Sessions (frequency, duration)	Instruments	Moments of evaluation	Results	Limitations
Daltry (2015)	Case study	To examine the effectiveness of ACT in a college counselling center setting.	N = 4	- ACT (n = 4)	9 (weekly, 90 min)	- BAI*	- Pre (session 1)	- Sig. ≠ at EA (AAQ-II) pre-post t(3) = -13.23, p = .001.	- Small sample.
			Uni,				- AAQ-II	- Post (session 9)	- Sig. ≠ at distress tolerance pre-post t(3) = 3.82, p = .032.
USA			100% Women			- DTS		- Sig. ≠ at anxiety pre-post. t(3) = 7.46, p = .005.	- No FU.
Folke et al. (2012)	RCT	To investigate the feasibility of brief ACT with	N = 34	- ACT + TAU	1 individual (60 /90 min) + 5 group sessions (weekly, 120-180 min)	- BDI	- Only self-report measures. - Pre	- ACT sig. improves BDI (Post d = 0.71, p = .011; FU d = 0.77 p = .063), GHQ (Post d = 0.63, FU d = 0.64, p's ≤ 0.05), PSS (only FU d = 0.59, p = .041) WHOQOL (post d = 0.74, p = .009; FU d = 0.65, p = .066).	- Small sample.

Table 1 (Continued)

Study and Country	Design	Objective	Sample	Treatment conditions	Sessions (frequency, duration)	Instruments	Moments of evaluation	Results	Limitations
Sweden		individuals on sick leave due to depression.	Adults	(n = 18)		- GHQ-12	- Post	- ACT > TAU at BDI (d = 0.86, p = 0.009), GHQ (d = 0.52, p = .049) and WHOQOL (d = 0.71, p = .023). ACT = TAU at sick leave (Pre-Post 100%; FU 66.6% ACT vs. 62.5% TAU)	- Including subclinical BDI.
			88.2% Women	GS: ND		- PSS	- FU (18 months)	- 55.9% ≥ moderate depression at Pre. CSC ACT 3/11 post, 4/11 FU vs. TAU 0/8 post, 1/8 FU.	- No data about use of care at TAU.
Glover et al. (2016)				- CG: TAU		- WHOQOL-BREF			-No control of common factors.
				(n = 16)		- Employment and sick leave registers.			- No PF measures.
Glover et al. (2016)	NRCT	To examine ACT impact at PF,	N = 51	- ACT (n = 51)	4 (weekly, 90 min)	- WBI-5	- Pre - Post	- Improve Pre-Post QOL ($\eta^2 = 0.30$), depression ($\eta^2 = 0.08$), MHCS ($\eta^2 = 0.11$) p's < 0.005, perceived stress ($\eta^2 = 0.03$) y PCS ($\eta^2 = 0.08$) p's < 0.05. Trend for less anxiety ($\eta^2 = 0.01$, p = .07). PF no sig. ($\eta^2 = 0.04$, p = .16).	- No CG. - No Random.

Table 1 (Continued)

Study and Country	Design	Objective	Sample	Treatment conditions	Sessions (frequency, duration)	Instruments	Moments of evaluation	Results	Limitations
m		Physical and mental health and symptom reduction.	VA	GS: 2 to 12.		- DASS-21	- FU (6-18 months, only use of services).	- CSC: 37.25% QOL, 29% stress, 37% depression and 19% anxiety.	- Only self-report measures.
	RCT	To evaluate the effectiveness of group ACT for mixed anxiety disorders in children and adolescents.	86.3% Men N = 193 Final 157	- AAQ-II - ACT (n = 54)	- FU: 53.8% not seek additional services. - SF-12v2 (PCS and MHCS) 10 (weekly, 90 min)	- ADIS-IV-C/P with CSR	- Pre - Post	- ITT and PP: ACT and CBT > WL. No sig. ≠ ACT vs. CBT. - ACT and CBT > WL at CSR (p < .001, ACT-ITT d = 2.59, CBT-ITT d = 3.09). Maintained at FU. CSC: Post 31.5% ACT, 40.1% CBT, 8% WL. FU: 37% ACT, 54.4% CBT. ACT and CBT fewer diagnoses (p < .001).	- No FU measures. - ≠ pre at CALIS-C (only report CALIS-P) - ≠ attrition rates.

Table 1 (Continued)

Study and Country	Design	Objective	Sample	Treatment conditions	Sessions (frequency, duration)	Instruments	Moments of evaluation	Results	Limitations
Australia			7-17years	- CBT (n = 57)		- MASC	- FU (3 months only ACT and CBT)	- ACT and CBT > WL at MASC ($p < .001$, post ACT $d = 0.53$, CBT $d = 0.85$; FU: ACT $d = 0.73$, CBT $d = 0.91$); CALIS-P post ($p < .001$, ACT $d = 2.12$, CBT $d = 1.83$) and CHQ ($p < .001$, Post: ACT $d = 0.71$, CBT $d = 0.56$, FU ACT $d = 1.03$, CBT $d = 1.43$),	- Short FU and none at WL.
			58% Women	GS: 5 to 9		- CALIS-C/P		- ACT and CBT > WL at AFQ-Y ($p < .001$, ACT $d = 0.61$, CBT $d = 0.80$). Lower CF/EA post ($p < .001$, ACT $d = 0.50$, CBT $d = 0.79$) and FU (ACT $d = 1.03$, CBT $d = 1.43$).	- C/E-Q only for parents and 33% of the sample.
				- CG: WL (n = 46) after 10 weeks - CBT		- CHQ - AFQ-Y			
						- TAS - yes/no scale for therapists' consistency -TCS -C/E-Q (parents)			

Table 1 (Continued)

Study and Country	Design	Objective	Sample	Treatment conditions	Sessions (frequency, duration)	Instruments	Moments of evaluation	Results	Limitations
Heydari et al. (2018)	RCT*	To determine the effectiveness of ACT for anxiety and depression of a Psychiatric Center staff.	N = 30	- ACT (n = 15)	8 (weekly, 90 min)	-MBI	- Pre	- ACT > CG at anxiety (Post: $p = .000$, $F = 119.955$ and FU: $p = .000$, $F = 81.072$) and depression (Post: $p = .000$, $F = 152.302$ and FU: $p = .000$, $F = 30.413$).	- Small sample.
Iran			Adults	GS: ND		-BDI-II -BAI	- Post - FU (2 months)		- Short FU - Only self-report measures. - No PF measures.
Jacobs et al. (2017)	NRCT	To develop, implement and evaluate an ACT group protocol for older VA.	N = 17 Final 13	-GC:NI (n = 15) - ACT (n = 17)	12 (weekly, ND)	- Focus group (satisfaction)	- Pre	- ACT sig reduce depression [t(12) = 2.28, $p = .04$].	- Small and convenience sample.
			VA ≥ 55 years	GS: 2cohorts n = 12: 2 groups and n = 5		- GDS-15	- Post	- On average anxiety (GAD-7) decreased one point and PF (AAQ-II) increased five (no sig.)	- No CG.
USA			100% Men			- GAD-7 - AAQ-II		- No sig. ≠ between cohorts. - High satisfaction.	- No FU. - Only self-report measures.

Table 1 (Continued)

Study and Country	Design	Objective	Sample	Treatment conditions	Sessions (frequency, duration)	Instruments	Moments of evaluation	Results	Limitations
Livheim et al. (2015)	RCT* (women) NRCT (men)	To examine the effect of brief ACT on depression and stress.	N = 51	- ACT (n = 32)	8 (weekly, ND)	- Clinical interview	- Pre	- ACT > TAU sig reductions at RADS-2 (d = 0.86, p = .008; Subscales: Dysphoric d = 0.77, Anhedonia d = 0.89, Negative Self Evaluation d = 0.67) and PF (AFQ-Y8 d = 0.73) (p's < 0.05)	- Small sample of volunteers.
Study 1. Australia			12-18 years.	GS: ±8 single sex groups		- SDQ	- Post	- High satisfaction with ACT.	- No FU.
			84.30% Women	- CG: TAU	12 weeks individual support (n = 19)	- RADS-2 - AFQ-Y8			- Mens: No random. - ACT ≠ TAU in time and format. - Only self-report measures.
Livheim et al. (2015)	RCT*	To examine the effect of brief ACT on depression and stress.	N = 32	- ACT (n = 15)	8 (in 6 weeks, 90 min)	- SDQ	- Pre	- ACT > TAU lower stress (d = 1.20) and anxiety (d = 0.80, p = .057) and higher mindfulness (d = 0.75, p = .067). No sig. change at AAQ-II or SWLS.	- Small sample of volunteers.
			14-15 years.	GS: ND single sex groups		- GHQ-12	- Post	- More sessions - sig. higher QOL (SWLS, r = 0.6, p = .034) and lower depression, anxiety and stress (DASS, r = -0.62, p = .042).	- No FU.

Table 1 (Continued)

Study and Country	Design	Objective	Sample	Treatment conditions	Sessions (frequency, duration)	Instruments	Moments of evaluation	Results	Limitations
Study 2. Sweden			71.90%			- PSS		- 91% positive feedback at satisfaction.	- ACT ≠ TAU in time and format. - Only self-report measures.
			Women	- CG: TAU		- DASS-21			
				2 to 8 individual support sessions (n = 17)		- SWLS - AFQ-Y17 - MAAS - 8 qualitative questions for satisfaction			
Malmir et al. (2017)	RCT*	To investigate ACT effect on life expectancy and anxiety among bereaved patients.	N = 34	- ACT (n = 17)	12 (weekly, 90 min).	- STAI	- Pre	- ACT > CG sig. higher life expectancy (p < .001, average increased from 12.40 to 23.30), and sig. lower anxiety (p < .001 decreased from 121.20 to 79.10).	- Small and convenience sample.
			Adults						
Iran			20–40 years 61.7% Women	- CG: NI (n = 17)		- LES	- Post		- No PF measures. - No FU.
									- Only self-report measures.
Perry et al. (2019)	NRCT	To explore the cultural adaptability of ACT in Turkish-speaking communities.	N = 8	- ACT (n = 7)	8 (weekly,	- Interview	-Pre	- Post: sig. reductions at depression (p = .014, g = 0.90), anxiety (p = .041, g = 1.09) and distress (p = .003, g = 2.03)	- Small sample.
			Final 7		2 h)	- PHQ-9	-Post	- RCI: 85.7% CORE-10; 71.4% GAD-7 and PHQ-9.	- No CG.

Table 1 (Continued)

Study and Country	Design	Objective	Sample	Treatment conditions	Sessions (frequency, duration)	Instruments	Moments of evaluation	Results	Limitations
UK			Adults			- GAD-7		- CSC:42.8% CORE-10, 28.6% PHQ-9 and GAD-7.	- No FU.
			42-62 Years			- CORE-OM		- High satisfaction with ACT.	- No PF measures.
			Majority Women			- Satisfaction Questionnaire.			- Only self- report measures.
Pinto et al. (2017)	NRCT	To examine the effectiveness of transdiagnostic ACT group in a psychiatric hospital.	N = 55 final 26	- ACT (n = 26, 12 groups)	10 (weekly, 5 h, including meal	- MAAS	- Pre (n = 55)	- Post: sig. reductions at depression ($\eta_p^2 = 0.17$ $p = .004$), anxiety ($\eta_p^2 = 0.11$ $p = .029$), stress ($\eta_p^2 = 0.13$ $p = .015$), functional disability (SDS $\eta_p^2 = 0.12$ $p = .017$), satisfaction with life ($\eta_p^2 = 0.19$ $p = .001$), personal well- being ($\eta_p^2 = 0.36$), VLQ ($\eta_p^2 = 0.26$), CFQ ($\eta_p^2 = 0.32$) and AAQ-II ($\eta_p^2 = 0.31$) p 's < 0.001. No sig \neq at MAAS (p < 0.165).	- Small sample and many drop- outs.
			Adults	GS: 8 to 12	breaks)	- VLQ	- Post (n = 26)	- RCI: 46.15% stress, 42.31% depression, 38.46% anxiety, SDS, MAAS and VLQ, 34.63% well-being, 30.77% CFQ and 26.92% AAQ-II.	- No CG.

Table 1 (Continued)

Study and Country	Design	Objective	Sample	Treatment conditions	Sessions (frequency, duration)	Instruments	Moments of evaluation	Results	Limitations
Australia			76.9% Women			- CFQ - AAQ-II - DASS-21 - SDS - PWI-A - CSQ-8 - APT Checklist.	- FU (1 month: not included: $n = 4$)	- CSC: largest at VLQ (34.62%), lowest at depression (7.69%). - Satisfaction ($M = 29.13$, $Sd = 3.24$).	- No FI. - Only self-report measures.
Tamannaeei et al. (2017)	RCT*	To compare the effectiveness of ACT and CT at depression.	$N = 19$	- ACT ($n = 10$)	12 (2 per week, ND)	- SCID-I/CV y SCID-II	- Pre	- All improve at BDI. No \neq ACT vs. CT post ($p > .05$). ACT sig improve Pre-FU vs. Pre-Post and Pre-FU in CT.	- Small and convenience sample
			Adults			- BDI-II	- Post	- DAS: Sig. \neq ACT vs. CT ($p > .05$). CT sig improve Pre-Post and Pre-FU. No sig \neq at ACT.	- Short FU
Iran			18-35 years	- CT ($n = 9$)		- AAQ-II	- FU (3 months)	- AAQ-II (PF): no sig \neq ACT vs. CT post ($p = .1$) or FU ($p = .3$). ACT sig. improve AAQ-II Pre-Post. No sig. \neq at CT.	- Same therapist CT and ACT.
Zettle et al. (2011)	RCT	To reanalyze Zettle and Rains (1989) data that compare group ACT vs. CT.	100% Women $N = 37$	- ACT ($n = 12$)	12 (weekly, 90 min)	- BDI	- Pre	- HLM and ITT. ACT and CT reduced depression Pre-FU.	- No SCID data at post. - Small sample. Only women.

Table 1 (Continued)

Study and Country	Design	Objective	Sample	Treatment conditions	Sessions (frequency, duration)	Instruments	Moments of evaluation	Results	Limitations
USA			Adults			- MMPI – D	- Post	- ACT > CT at BDI improvement. $F(1, 18.19) = 6.73$, $p = 0.018$ (ES = 1.08).	- Short FU.
			100% Women	- CT (n = 13)		- HRS-D	- FU (2 months)	- MA: ATQ (thoughts frequency), ATQ-B (cognitive defusion), DAS (dysfunctional attitudes). Only ATQ-B post mediated BDI at FU ($p \leq 0.05$). BDI did not mediate ATQ-B.	- MA not meet all criteria.
				GS: 4 to 7 (2 groups × condition)		- ATQ			- Same therapist CT and ACT.
						- ATQ-B	* BDI at each session.		- Only self-report measures
						- DAS			
						- Evaluation of the session.			

RCT: Randomized controlled trial. NRCT: Non-Randomized controlled trial. GAD: Generalized anxiety disorder. Uni: University students. VA: Army veterans. ACT: Acceptance and commitment therapy. CBT: Cognitive behavioral therapy. TC: Cognitive therapy. CG: Control Group. WL: Wait List. NI: No intervention. TAU: Treatment as usual. GS: Group size. ND: No data. PF: Psychological flexibility. Pre: Pre-treatment. Post: Post-treatment. Mid: Mid-treatment. FU: Follow up. ITT: Intention to treat analysis. PP: Per Protocol analysis. HLM: Hierarchical linear modeling. RCI: Reliable change index. CSC: Clinically significant change. MA: Mediation analysis. EA: Experiential Avoidance. CG: Cognitive Fusion. QOL: Quality of Life. M: Mean. Sd: Standard Deviation. ES: Effect Size. ADIS-IV: Anxiety Disorders Interview Schedule for DSM-IV. CSRs: Clinical Severity Ratings. PSWQ: Penn State Worry Questionnaire. DASS-21: Depression, Anxiety, Stress scales. QOLI: Quality of Life Inventory. AAQ: Acceptance and Action Questionnaire. IUS: Intolerance of Uncertainty Questionnaire. CAQ: Cognitive Avoidance Questionnaire. WW-II: Why Worry II Questionnaire. DUACRS: The Drexel University ACT/CBT Therapist Adherence and Competence Rating Scale. CES-D: Center for Epidemiologic Studies Depression Scale. HADS-A: Hospital Anxiety and Depression scale - Anxiety subscale. SUA: Standard Units of Alcohol. CIS: checklist individual strength. BAI: Beck Anxiety Inventory. BAI*: Burns anxiety inventory. DTS: Distress Tolerance Scale. BDI: Beck Depression inventory. GHQ-12: General Health Questionnaire. PSS: Perceived Stress Scale. WHOQOL-BREF: World Health Organization Quality of life questionnaire – short form. WBI-5: World Health Organization Well Being Index. SF12: health survey shorter form. SF12-PCS: Physical Health Composite Scores. SF12-MHCS: mental health functioning. MASC: Multidimensional Anxiety Scale for Children. CALIS-C/P: Children's Anxiety Life Interference Scale. Child/Parents report. CHQ: The Child Health Questionnaire. AFQ-Y: Avoidance and Fusion Questionnaire for Youth. TAS: Therapist Adherence Scale. TCS: Therapist Competence Scale. C/E-Q: Credibility/Expectancy Questionnaire. MBI: Maslach Burn-Out inventory. GDS-15: Geriatric depression scale. GAD-7: Generalized Anxiety Disorder Scale. SDQ: The Strengths and Difficulties Questionnaire. RADS-2: Reynolds Adolescent Depression Scale. SWLS: Satisfaction with Life Scale. MAAS: Mindful Attention Awareness Scale. STAI: The State-Trait Anxiety Inventory. LES: Life expectancy scale. VLQ: The Valued Living Questionnaire. CFQ: The Cognitive Fusion Questionnaire. SDS: The Sheehan Disability Scale. PWI-A: The Satisfaction with Life as a Whole and Personal Wellbeing Index. CSQ-8: The Client Satisfaction Questionnaire. SCID-I-CV: Structured clinical interview for DSM-IV, Axis I, clinical version. SCID-II: Structured clinical interview for DSM-IV, Axis II. DAS: Dysfunctional Attitude Scale. MMPI-D: Depression scale of the Minnesota Multiphasic Personality Inventory.

HRS-D: Hamilton Rating Scale for Depression. ATQ: Automatic Thoughts Questionnaire. ATQ-B: Automatic Thoughts Questionnaire – Believability. PES: Pleasant Events Schedule. PHQ-9: Patient Health Questionnaire.

CORE-OM: Clinical Outcomes in Routine Evaluation-Outcome Measure.

- * There is a convenience sampling in these RCTs, that limits the randomization.

51 participants, with the exception of the case study with $n = 4$ (Daltry et al., 2015) and two studies with larger samples, $n = 93$ (Bohlmeijer et al., 2011) and $n = 193$ (Hancock et al., 2018). A predominance of women was frequent, with levels from 58% to 100%. The total number of participants in the studies included was 709, 447 women, 223 men and 38 cases in which this information was not provided.

Recruitment and selection criteria and procedures varied from one study to another. All were based on the presence of depression and/or anxiety symptoms, these generally having been identified by the participants themselves, who offered to participate of their own volition or were remitted to the study by a professional health-care worker. Furthermore, six studies used some kind of clinical interview, either alone or together with some screening procedure (Avdagic et al., 2014; Bohlmeijer et al., 2011; Hancock et al., 2018; Livheim et al., 2015; Perry et al., 2019; Tamannaie et al., 2017). Others determined the presence of anxiety/depression using different screening instruments (Heydari et al., 2018; Livheim et al., 2015; Malmir et al., 2017; Zettle et al., 2011) or because of the presence of a previous diagnosis (Folke et al., 2012). The evaluation procedures were extremely diverse, using different standardized questionnaires with different cut-off points for the carrying out of the screening and different diagnostic interviews (Table 1).

3.3. Characteristics of psychological interventions

All interventions were brief, ranging from 4 to 12 sessions. Frequency was generally weekly and duration between 90 and 120 min. They were carried out by a minimum of two therapists, except in the study by Tamannaie et al. (2017), in which there was only one. Three studies do not provide this information (Heidary et al., 2018; Jacobs et al., 2017; Malmir et al., 2017). All interventions were implemented by psychologists with different levels of training in ACT. Only six studies refer to some sort of supervision in the application of the intervention (Avdagic et al., 2014; Folke et al., 2012; Glover et al., 2016; Hancock et al., 2018; Livheim et al., 2015; Perry et al., 2019).

3.4. Objective and characteristics of psychological interventions

In all studies, the objective of ACT was to increase psychological flexibility by deactivating cognitive fusion and experiential avoidance, promoting acceptance, flexible attention to the present moment and defusion, identifying important personal values and promoting actions committed to those values. The most widely used therapeutic strategies were experiential and defusion exercises (e.g. Chinese Finger Trap, Taking your mind for a walk or Milk, milk, milk exercise), mindfulness exercises (e.g. present moment awareness or mindfully eating a raisin), metaphors (e.g. passengers on the bus, the person in the hole, the polygraph), reflections, group discussions and tasks to be done at home.

Only one study, carried out with an infant-juvenile population (Hancock et al., 2018) had distinctive characteristics, explicitly including exposition exercises aimed at promoting consciousness and acceptance and training in social skills and problem solving. Furthermore, psychoeducational sessions were held for the parents in order to form a "parent-tutor" approach and facilitate subsequent generalization.

3.5. Evaluation

As can be seen in Table 1, studies coincide to some extent with regard to the variables evaluated and the results criteria, the measures employed and the moments of evaluation. The most frequently evaluated variables were depression, anxiety, psychological flexibility, stress and quality of life. Despite the ideographic and contextual character

of ACT, in all studies data were obtained through standardized questionnaires and only four also used clinical interviews (Avdagic et al., 2014; Hancock et al., 2018; Perry et al., 2019; Tamannaie et al., 2017). None of the studies referred to the use of observation or self-reports in the evaluation. The standardized scales used were very diverse (Table 1), although all studies did include pre- and post-evaluations, and half of them carried out a follow-up, generally after 2 or 3 months.

3.6. Intervention results

3.6.1. Depression

The 12 studies which included this variable found significant improvements in depression in the post-evaluation and also in the 2- to 18-month follow-ups carried out in seven of the studies. In the five RCTs which included a no-intervention control group, those subjects receiving ACT showed significantly greater improvement than the waiting list or TAU. Three RCTs studied the differential efficacy of ACT in relation to CT or CBT, generally finding equivalent results, with the exception of Zettle et al. (2011) who reported that ACT was superior to CT in depression. This variable was evaluated with different questionnaires, the most frequent being Depression, Anxiety and Stress scales (DASS-21; Lovibond and Lovibond, 1995) and Beck Depression Inventory in its two versions, BDI-I (Beck et al., 1961) and BDI-II, (Beck et al., 1996). Furthermore, four studies reported the percentage of patients who fulfilled clinical change criteria (Table 1).

3.6.2. Anxiety

The 11 studies which analysed this variable report improvements in the post-evaluation and also in the 2- or 3-month follow-ups carried out in four of the studies. In five RCTs, the efficacy of ACT in comparison to a no-intervention control group was demonstrated, and in another two, results obtained for anxiety were equivalent to those with CBT. This variable was evaluated, principally, using different questionnaires, DASS-21 and Generalized anxiety disorder questionnaire (GAD-7; Spitzer et al., 2006) being the most common. Some studies used clinical change or reduction in the diagnoses as evaluated in a clinical interview as result criteria (Table 1).

3.6.3. Stress

Of the studies which evaluated stress, three report statistically significant improvements in the post-evaluation (Glover et al., 2016; Livheim et al., 2015; Pinto et al., 2017), one only in the follow-up (Folke et al., 2012) and another in both moments (Avdagic et al., 2014). Stress was evaluated by means of different questionnaires (predominantly DASS-21) and two studies also include information regarding the percentage of patients who fulfilled clinical change criteria (Table 1).

3.6.4. Quality of life

Five studies evaluated quality of life with different questionnaires, reporting statistically significant improvements in the post-evaluation (Glover et al., 2016; Pinto et al., 2017), which were maintained in the follow-ups (Avdagic et al., 2014; Folke et al., 2012; Hancock et al., 2018). Two studies also give information regarding the percentage of patients who fulfilled clinical change criteria (Table 1).

3.6.5. Psychological flexibility

All studies except four evaluate the change in psychological flexibility (see Table 1) using different questionnaires. The most widely used were the Acceptance and Action Questionnaire (AAQ-II; Bond et al., 2011) and the Avoidance and Fusion Questionnaire for Youth (AFQ-Y; Greco et al., 2008). Eight studies found improvements in the post-evaluation, which were maintained, or even continued to increase, in the follow-ups. Three studies (Glover et al., 2016; Jacobs et

al., 2017; Livheim et al., 2015) found no statistically significant improvements. When compared to a no-intervention control group, ACT obtained better results in psychological flexibility. In the studies which compared ACT with CT or CBT, Avdagic et al. (2014) detected a trend towards a steeper increase in psychological flexibility for ACT group compared to CBT, while others (Hancock et al., 2018; Tamannaie et al., 2017) report equivalent changes. With regard to the mechanisms responsible for change, two studies report that changes in psychological flexibility mediate the improvement in anxiety/depression (Bohlmeijer et al., 2011; Zettle et al., 2011). Swain et al. (2015) find that changes in psychological flexibility mediate improvements in anxiety, both in ACT and in CBT. In contrast, Zettle et al., 2011 find that the greater change in cognitive defusion (a component of psychological flexibility) in ACT, in comparison to CT, mediates better results in depression.

3.6.7. Other results

In particular cases, some studies report positive effects of ACT on worry, tolerance to uncertainty or stress, fatigue, functional deterioration, satisfaction with life or personal well-being. Some studies also evaluated the impact of ACT on variables such as dysfunctional attitudes or the frequency of automatic negative thoughts, without finding significant effects.

3.6.8. Intervention adherence

All of the studies except five (Daltry et al., 2015; Glover et al., 2016; Heydari et al., 2018; Malmir et al., 2017; Tamannaie et al., 2017) give information regarding intervention adherence. In general, attrition was below 25% and the participants attended 80% of the sessions. Five studies (Avdagic et al., 2014; Bohlmeijer et al., 2011, Hancock et al., 2018; Pinto et al., 2017; Zettle et al., 2011) also report a high rate of adherence to the treatment protocol on the part of the therapists.

3.6.9. Satisfaction with the intervention

As can be seen in Table 1, the five studies in which it is evaluated, find a high degree of satisfaction with group-based ACT. This was evaluated by questionnaires (Perry et al., 2019; Pinto et al., 2017), qualitative questions (Livheim et al., 2015) or focus group (Jacobs et al., 2017).

3.6.10. Limitations

The studies reviewed show some limitations. The samples are generally small, and several are of specific populations such as univer-

sity students (Daltry et al., 2015), people on sick leave (Folke et al., 2012), army veterans (Glover et al., 2016; Jacobs et al., 2017), psychiatric center staff (Heydari et al., 2018), bereaved patients (Malmir et al., 2017) or Turkish-speaking communities (Perry et al., 2019). An independent bias assessment was carried out. Regarding study design, one is a case study, several do not include a control group, and only half carry out a medium/long-term follow-up. Only four compare ACT to another therapy, and of those, only one includes a no-intervention control group. With regard to evaluation procedures, the majority of the studies exclusively use standardized questionnaires. Furthermore, although 11 studies evaluate the change in the processes of psychological flexibility at which ACT is aimed, their results are extremely disparate.

Table 2 shows the risk of bias in RCTs (Higgins et al., 2011). Although in all studies random sequences were generated when assigning participants to groups, in several a convenience sampling was carried out previously, thus limiting the degree of randomization. Only three studies give adequate information regarding the allocation concealment and seven give information regarding attrition. Blinding of personnel during treatment application is not possible in therapy studies and only two studies blinded the evaluation of results. Results may have been reported selectively, since only one study (Hancock et al., 2018) has a previously registered protocol, but does not give information regarding all the result variables contemplated therein. All studies use suitable statistical analyses when processing data, the case study and four clinical trials use intra-subject designs to compensate design limitations for not having a control group.

4. Discussion

The objective of this review is to analyse the usefulness of ACT, applied on a group basis, in cases of anxiety and/or depression. The search for published studies which included the chosen selection criteria was exhaustive. There is no record of other review studies with the same objectives having been published for the same time period. Fifteen studies were finally included in the study. The initial number of publications identified as using ACT on a group basis was greater. However, all those studies in which emotion distress was tackled in the context of other problems were excluded, as were those that did not employ reliable measures of anxiety/depression, thereby excluding from this review all those studies which did not fulfill the minimum methodological criteria required to examine the usefulness of group-based ACT for the treatment of emotional disorders.

We acknowledge that this review is subject to several caveats. There is no previously published protocol. We included only published

Table 2
RCTs source of bias.

Article	Random sequence generation	Allocation concealment	Blinding of participants and personnel	Blinding of outcome assessment	Incomplete outcome data	Selective reporting	Other bias
Avdagic et al. (2014)	+	+	-	?	+	?	+
Bohlmeijer et al., 2011)	+	?	-	-	+	?	+
Folke et al. (2012)	+	-	-	-	+	?	+
Hancock et al. (2018)	+	+	-	+	+	?	+
Heydari et al. (2018)	+*	?	-	-	-	?	-*
Livheim et al. (2015). Australia	-(only women)	-	-	-	+	?	-*
Livheim et al. (2015). Suecia	+*	-	-	-	+	?	-*
Malmir et al. (2017)	+*	-	-	-	-	?	-*
Tamannaie et al. (2017)	+*	-	-	-	-	?	-*
Zettle et al. (2011)	+	+	-	+	+	?	+

* Convenience sampling before randomization.

works, studies with at least basic quantitative reporting of outcome data and studies focusing on treating, rather than preventing, anxiety and depression disorders. It was frequently not possible to contact authors to obtain further unpublished information. The extent of publication bias towards positive results is unknown. It could be argued that samples are too diverse, making it difficult to infer general conclusions. We tried to reduce this diversity by not including interventions involving anxiety and/or depression in the context of other mental disorders and/or other medical or specific psychosocial problems. The observed heterogeneity may be a reflection of the real application of ACT and might be suggestive of the external validity of our findings. We also acknowledge that our review explores the efficacy of ACT only for anxiety and depression. Consequently, we did not include studies about another emotional problems, such as anger or shame management or about other complex mental or physical health conditions, which may have contributed towards a more dimensional understanding of mental disorders.

The studies reviewed are heterogeneous with regard to design, sample characteristics and methodological rigor. Although this fact makes it difficult to reach firm, consensus-based conclusions regarding the efficacy of ACT, the studies reviewed do show group-based ACT to be appropriate and useful in various different populations and contexts.

In all studies, the principal objective of ACT intervention is to increase psychological flexibility and actions committed to personal values, using therapeutic strategies characteristic of this contextual therapy. The publications do not, however, offer sufficient information to clarify whether during the sessions therapy contents and procedures were programmed to identify and modify the functionality of the behaviour of different group members in line with the logic of a contextual ideographic approach, or, on the contrary, sessions followed a preestablished sequence of objectives and tasks for all group members. This lack of information regarding how the group-based element of the ACT was implemented leaves two questions. The first of these questions involves the viability of group-based ACT to specifically tackle the functionality of the psychological inflexibility patterns of each participant in the group. The second question, directly related to the first, is with regard to which of the objectives and different procedures of the therapy, when applied on a group basis, were involved in bringing about behavioural change.

Limitations in the study designs are of particular relevance since insufficient bias control measures adopted during the processes of evaluation and therapy could undermine the value of the results. Such shortcomings include the fact that only half of the studies carried out medium/long-term follow-ups or that not all included control groups, those that did generally using no-intervention or TAU groups. Similarly, comparison with other empirically valid group therapies (CT or CBT) was even less frequent and none of the studies used a placebo procedure. Placebo group sessions, with the same frequency and duration as the experimental groups, but without any of the clinical ingredients of the interventions tested, might make it possible to examine the potential effects of the therapy beyond those resulting from mere attention or support. This type of intervention has to be applied in a format which is credible for participants. In this way, placebo interventions in particular can make a contribution to showing the specificity of the change ingredients proposed by each therapy. If an intervention is superior to a well-administered placebo the difference would be based on the specific principles of that intervention. It is important to note that, in the context of therapeutic relationship, all models provide the person with new explanations regarding his/her problems and a new perspective on him/herself and the world. This communication is one of the ingredients of therapeutic change and a common principal of psychotherapy (Fernández Rodríguez et al., 1994; Norcross, and Wampold, 2011; Wampold, 2015). It is believed that the effect of this communication and of the therapeutic relationship can permit peo-

ple to re-orientate attention previously focused on their symptoms towards other worthwhile areas of their daily lives. In this way the person is able to mobilize his/her own resources and those available in his/her environment to initiate new actions which are at the root of the process of change. To maintain that the processes which appear essential for therapeutic change consist principally of forms of behavioral activation is coherent with the interactive nature of psychological problems put forward by contextual therapies such as ACT (Fernández-Rodríguez et al., 2018; Meidlinger and Hope, 2017). Even so, in view of the limitations observed in the designs of the studies analysed, further studies, with adequate control measures of the evaluation and treatment processes, will be necessary before results are definitively attributed to the contents and procedures of ACT. Moreover, the effectiveness of a psychotherapy may be related to the integrated skills of the therapist (i.e. the number of hours of practice, the specialization in one psychotherapeutic pathway as opposed to mix various practices and never really deepen and master one or the application of the psychotherapeutic pathway in the therapist's own personal daily life). Therefore, these data should be interesting components to add in future studies.

With regard to the evaluation procedures for criterion variables, anxiety and/or depression, the studies only coincide in certain cases in the measures used and moments of evaluation. All include some type of standardized questionnaire while only a minority use interviews or clinical change criteria. Nevertheless, the questionnaires used are extremely diverse, the differences lying in the cognitive, somatic and/or behavioural dimensions of the anxiety/depression responses which are evaluated. Nor is there consensus regarding the clinical benefit criterion used. Despite this, changes in anxiety and/or depression indicating a greater efficacy of ACT as compared to no-intervention control groups are repeatedly identified. Very few of the studies include other types of measures, such as quality of life, well-being, personal satisfaction or functionality, but those which do also find more positive results in the ACT groups. This is consistent with previous reviews (A-tjak et al., 2015; Hacker et al., 2016) that predominantly include studies in individual format.

Psychological flexibility, specific to contextual formulations of psychological problems and to ACT, is evaluated in almost all the studies using standardized questionnaires. The AAQ-II (Bond et al., 2011) is widely used to measure experiential avoidance/acceptance. Results also coincide in identifying significant changes in post-treatment, these being maintained, or even increasing, in follow-ups, always pointing to the efficacy of group-based ACT. Furthermore, those studies which include mediation analyses indicate that changes in psychological flexibility mediate improvement in anxiety/depression. It is worth noting that, in general, studies do not evaluate the activation patterns of the participants. This limitation was pointed out recently by Stockton et al. (2019), who found a lack of investigation regarding some of the processes included in the concept of psychological flexibility, with most studies focusing on acceptance or cognitive defusion. In our review, only Pinto et al. (2017) evaluate commitment to action by means of the Valued Living Questionnaire (Wilson et al., 2010). This failure to measure what is one of the key objectives of ACT is more than a little surprising. Fernández-Rodríguez et al. (2018) found that interaction between a reduction in activation and an increase in experiential avoidance were associated with clinical distress. A reduction in Activation was the condition which distinguished those people with the greatest distress and also the greatest comorbidity of symptoms of depression and anxiety. These data suggest that greater attention should be paid to this concept. Indeed, ACT seeks through the "acceptance" of mental / emotional states to facilitate a person's "commitment" to worthwhile actions. The absence of this information regarding the participants' activation patterns not only limits the characterization of the emotional problem (Fernández-Rodríguez et al., 2018)

but also makes it more difficult to analyze the specificity of the ACT procedure in relation to the objectives which the therapy itself formulates. In this regard and according to Harris (2019) when deeply apprehending ACT psychotherapeutic pathway, it is important to understand that the most important is not to engage in specific public behaviors (as opposed to traditional CBT), but to choose public or private behaviors on the basis of valued state of mind. This is one's intention that matters: the intention to base one's private or public behavior not on agitated emotional states of mind but on deep valued state of mind. The outward appearance of the behavior does not matter. Therefore, improvement in meaningful clinical assessment should be thought more deeply (Harris, 2019).

None of the studies refer to the use of observation or self-reports as evaluation procedures during the treatment process or to any of the behavioural patterns which were relevant in the ACT. Although observation and self-reports can have limitations regarding reliability and adhesion (Manos et al., 2010), from a contextual standpoint their use throughout the treatment is essential, both in order to analyze (in each participant) the relationship between conduct and its contextual conditions and when designing the intervention. It can consequently be assumed that these procedures were used during the therapy but that the authors do not provide related information, considering them to be of merely instrumental value in the implementation of the therapy. Nevertheless, this data would be of great interest in order to analyze to what extent the therapy is responsible for and specific to the clinical change. It must also be remembered that, although they are the most commonly used instruments, standardized questionnaires also entail problems of reliability and validity (Howard, 1980). For this reason, it is vital, throughout the intervention, to use simultaneously different evaluation procedures and analyze the congruence of the data obtained. This condition is not fulfilled in any of the studies reviewed.

When ACT is compared to other interventions (CT or CBT), in line with previous reviews (A-tjak et al., 2015; Hacker et al., 2016), they all appear to achieve equivalent results with regard to anxiety/depression. Similarly, when a comparison is made of the effects of the different therapies on patterns of psychological flexibility, it is found that CT or CBT interventions, despite not having been specifically designed to act upon this, provoke similar changes to those obtained with ACT. These results, coherent with the contextual logic on which ACT is based, could be explained by the fact that the procedures of all these therapies contain some form of behavioral activation (Meidlinger and Hope, 2017). Be that as it may, they leave open the question as to the specificity and usefulness of the procedures used in the different therapies to bring about clinical change. The analysis of the functionality of behaviours, which characterizes contextual therapies (including ACT) could help to explore the conditions on which the psychological change depends.

The possibility of generalizing data obtained to different populations is supported by the heterogeneity of the samples. Studies cover different degrees of severity of anxiety and/or depression in different populations. On the whole, they appear to show that group-based ACT has positive effects in the treatment of emotional disorders of varying severity in children, adolescents and adults. However, whilst acknowledging the difficulties inherent to clinical investigation, the majority of the studies have only modest samples, sometimes taken from specific populations or the result of convenience sampling, which compromises, at least in part, any generalization of the results.

5. Conclusions

Of the different treatments available, the contextual approach to psychological problems taken in ACT appears to provide a particularly useful form of tackling emotional disorders. All of the studies reviewed, despite the heterogeneity of experimental designs, report improvements in emotional state and in psychological flexibility following the inter-

vention. ACT can help people, by means of a functional analysis of the relationship between their behaviours and the conditions of the context which maintain them, to identify and modify their experiential avoidance patterns which are at the root of their distress and to commit themselves to actions which are of value to them.

In general, the studies reviewed suggest that group-based ACT is useful for tackling emotional disorders. However, due to the heterogeneity and methodological limitations of the studies, it is not possible to determine either the exact therapeutic ingredients or the extent to which these are specific to the approach and procedure of this therapy. Further research is required, involving studies which include adequate control procedures for the processes of evaluation and therapy. These should clearly specify protocols, carry out long-term follow-ups and evaluate changes both statistically and clinically, not merely in emotional state but also in the behavioural patterns which are believed to modulate both anxiety and depression and clinical change, in other words, the patterns of acceptance/avoidance and of activation. More research is also needed into what is presumed to be the optimal cost-effectivity relation of the group format. None of the studies compare group vs individual ACT, using cost calculation methodology. This could contribute to recognition that ACT in group format, as is suggested, is a treatment which is both efficacious and efficient.

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Uncited references

Fernández Rodríguez et al. (1994) Fernández Rodríguez et al., 1994, Wilson et al. (2010) Wilson et al., 2010.

CRediT authorship contribution statement

Rocío Coto-Lesmes: Writing - review & editing. **Concepción Fernández-Rodríguez:** Writing - review & editing. **Sonia González-Fernández:** Writing - review & editing.

Declaration of Competing Interests

The authors whose names are listed immediately below certify that they have NO affiliations with or involvement in any organization or entity with any financial interest (such as honoraria; participation in speakers' bureaus; membership, employment, consultancies, stock ownership, or other equity interest; and expert testimony or patent-licensing arrangements), or non-financial interest (such as personal or professional relationships, affiliations, knowledge or beliefs) in the subject matter or materials discussed in this manuscript

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