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Is Activation the active ingredient of transdiagnostic therapies? A randomized clinical trial of Behavioral Activation, Acceptance and Commitment Therapy, and transdiagnostic Cognitive-Behavioral Therapy for emotional disorders.

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RUNNING HEAD: BA, ACT AND TD-CBT FOR EMOTIONAL DISORDERS

Abstract

Studying the usefulness of contextual and cognitive transdiagnostic therapies calls for an analysis of both their differential efficacy and their specificity when acting on the transdiagnostic conditions on which they focus. This controlled trial compares the post-treatment and 3- and 6-month follow-up effects of Behavioral Activation (BA), Acceptance and Commitment Therapy (ACT) and Cognitive-Behavioral Transdiagnostic Therapy (TD-CBT) on emotional symptomatology, and analyses the role played by Experiential Avoidance, Cognitive Fusion, Activation and Emotion Regulation in the clinical change. One hundred twenty-eight patients who fulfilled diagnostic criteria for anxiety and/or depression (intention-to-treat sample) were randomly assigned to 3 experimental group-treatment conditions (BA, n=34; ACT, n=27; TD-CBT n=33) and one control group (WL, n=34). Ninety-nine (77.34%) completed the treatment (per-protocol sample). In the post-treatment, all therapies reduced anxiety and depression symptomatology. In the follow-ups, the reduction in emotional symptomatology was greater in the condition which produced greater and more prolonged effects on Activation. Activation appears to be the principal condition in modifying all the transdiagnostic patterns and BA was the most efficacious and specific treatment. The trial was registered at ClinicalTrials.gov NCT04117464. Raw data are available online http://dx.doi.org/10.17632/krj3w2hfsj.1.

Keywords: Anxiety; Depression; Activation; Experiential Avoidance; Cognitive Fusion; Behavioral Activation; Acceptance and Commitment Therapy; Transdiagnostic Cognitive-Behavioral Therapy

Introduction

Despite the existence of a myriad of controlled studies confirming the effectiveness of psychotherapy, the implementation of efficient treatments for anxiety and depression continues to be a challenge for public health institutions (World Health Organization, 2019). In a recent meta-analysis, Cuijpers et al. (2020) examined the effects of 15 different types of psychotherapy, all widely used in the treatment of depression, and concluded that they could all be effective. Similar results have been announced in numerous publications regarding treatment for depression and anxiety (Carl et.al., 2020; Cuijpers et al., 2019; Hunot et al., 2013). Data indicate a greater efficiency of behavioral therapy, cognitive-behavioral therapy and third-generation therapies. However, evidence is not conclusive due to high levels of heterogeneity, publication bias, and risk of bias in the majority of studies. Interventions with different approaches and procedures have shown similar results. As levels of comorbidity between anxiety and depression range from 50-81% (Groen et al., 2020; Rosellini et al., 2018), this brings into question the specificity of the treatments and the nature of the emotional disorders.

So-called transdiagnosis is currently being used to seek answers to these questions. This approach examines the factors which are functionally involved in the acquisition and maintenance of psychological problems (for review, see: Dalgleish et al., 2020; Mansell et al., 2009; McEvoy et al., 2009; Sauer-Zavala et al., 2017) as these are particularly relevant in the case of emotional disorders. Although the presence of clinical symptomatology is generally regarded to be the defining condition, these emotional disorders continue to be as scarcely operationalized as they are widely studied (Bullis et al., 2019).

The principal transdiagnostic proposals are linked to two of the explanatory models for psychological problems, the contextual and the cognitive models. The Contextual approach sees psychological disorders as inefficient ways of solving the problems of life,

learnt and maintained by their own functionality in a given life context (social/cultural). In this context, psychological inflexibility has been suggested as a transdiagnostic dimension (Hayes et al., 1996). In other words, the development and maintenance of psychological problems depends on inflexible patterns of behaviors characterized by experiential avoidance (EA), cognitive fusion (CF), self-as-content, lack of contact with the present moment, lack of values, and lack of commitment to action. Two components of psychological inflexibility, EA and CF, are considered key in exacerbating general emotional distress (Bardeen & Fergus, 2016; Roush et al., 2019). EA is defined as the: "phenomenon that occurs when a person is unwilling to remain in contact with particular private experiences (e.g., bodily sensations, emotions, thoughts, memories, behavioral predispositions) and takes steps to alter the form or frequency of these events and the contexts that occasion them" (Hayes et al., 1996, p. 1154). Although the avoidance of unwanted inner experiences may alleviate distress in the short-term, it paradoxically exacerbates distress over longer periods of time. By avoiding experiences, people distance themselves from those conditions of life which are relevant to them, losing contact with life contingencies/circumstances in which change could, and should, occur. Consequently, distress increases, and the person becomes trapped in a loop of avoidance (Bardeen, 2015; Faulkner et al., 2020). CF describes excessive regulation of behavior by cognition, whereby thoughts (e.g., evaluative and self-descriptive thoughts) are viewed as literal truths that dominate emotional and behavioral regulation to the exclusion of other contextual variables (Hayes et al., 2011). It has been proposed that fusion with distressing thoughts could act as a precedent of EA. However, avoiding private experiences and the situations in which they are produced limits the extent to which behavior is controlled by environmental contingences and, as a result makes it more likely that cognitive regulation is reinforced. Regardless of the time relationship or the interrelationship between EA and CF, there exists an abundance of evidence to show their

association with emotional distress (Barden & Fergus, 2016; Berghoff et al., 2018; Cookson et al., 2020).

The cognitive transdiagnostic approach, in contrast, generally points to emotional dysregulation and avoidance experiences as being the processes functionally involved in the development of emotional disorders (Bullis et al., 2019; Clark, 2009; Gross, 2015; Mansell et al., 2009; Meidlinger & Hope, 2017). These emotional disorders are defined, according to Barlow and his colleagues (Barlow et al., 2014; Bullis et al., 2019) by the presence of frequent and intense negative emotions, aversive reactions to emotional experiences perceived as unacceptable or uncontrollable, and the use of avoidant regulation to escape from negative emotional experiences. There undoubtedly exists widespread empirical evidence to suggest that experiential avoidance acts as a functional dimension in various psychological problems.

In sharp contrast to the behavior pattern of experiential avoidance is that of activation. It has been suggested that Activation (A), defined in terms of "implication with relevant objectives and activities of daily life, maintaining contact with the experiences/conditions of life and with sources of reinforcement" is a modulating condition of human suffering (Manos et al., 2010). Studies regarding the role of A and EA have shown how people with no clinical symptoms of emotional disorders had higher levels of A than those found in people with emotional disorders. This latter group was characterized by both a maintenance of EA patterns and a reduction in A, but the condition which best distinguished subjects with emotional distress and a greater degree of depression and anxiety comorbidity was the reduction in A (Fernández-Rodríguez et al., 2018; González-Fernández et al., 2017). The process of activation has been widely shown to be associated with therapeutic benefits with different populations (Jacobson et al., 2001; O'Mahen et al., 2017; Santos et al., 2017). This transdiagnostic function of A inevitably

leads us to the role of environmental reinforcement during the initial and maintenance stages of psychological problems (Costelo, 1972; Burkhouse et al., 2017). Indeed, the negative relationship between response-contingent positive reinforcement (RCPR) and emotional distress is well-established (Gable et al., 2000; Hopko et al., 2003; Lewinsohn, 1974; Manos et al., 2010; Martell et al., 2001).

In line with this transdiagnostic approach, interventions aimed at promoting A and modifying patterns of EA would appear to be a suitable way of dealing with emotional problems. Contextual therapies, in particular Behavioral Activation (BA) and Acceptance and Commitment Therapy (ACT) focus explicitly on acting on these two transdiagnostic conditions. BA (Lejuez et al., 2001; Martell et al., 2001) focuses on activating subjects to decrease avoidance and re-engage in life in ways which are specific to their values and goals, and to help them re-establish and sustain contact with positive reinforcement to prevent relapse. ACT (Hayes et al., 2011) seeks to modify experiential avoidance behaviors by encouraging people to stop attempting to control painful private experiences, thus allowing behavioral changes in line with their values. From a cognitive transdiagnostic point of view, the interventions take Barlow's Unified Treatment as their principal point of reference (UP; Barlow et al., 2004; Barlow et al., 2011). This proposal aims to facilitate an approach-oriented stance toward emotional experiences in order to reduce avoidance patterns. The intervention consists of a series of intervention modules. These focus on: setting goals and increasing motivation for treatment; psychoeducation regarding the adaptive nature of emotional experiences; developing more balanced, alternative thoughts as a strategy of emotion regulation; changing the trends of avoidance associated with strong emotions; promoting an emotional conscience, interoceptive and emotional exposure; and relapse prevention (UP; Barlow et al., 2004; Barlow et al., 2011; Steele et al., 2018). The authors emphasize that one of the benefits of this modular

proposal is its flexibility regarding the order in which the skills are practiced and the time spent on each component. Moreover, to promote access to these treatments and improve their efficiency, they can be applied in group format (Meier & Meier, 2018). Numerous adaptations, under the general heading of cognitive-behavioral transdiagnostic interventions (TD-CBT), have led to an increased use of these treatments in different environments and problems (Cassiello-Robbins et al., 2020).

Several reviews and meta-analyses show the efficacy of these three therapies, applied in different contexts and formats, for the treatment of emotional disorders. Amongst others, Coto-Lesmes et al., (2020_a), Cuijpers (2017), Martin & Oliver (2019), or Tindall et al., (2017) have found evidence of the usefulness of BA compared to other interventions and with different control groups. Results are similar regarding ACT (Coto-Lesmes et al., 2020_b; Dindo et al., 2017; González-Fernandez & Fernández-Rodríguez, 2019; Twohig & Levin, 2017), and also in the case of UP (Cassiello-Robbins et al., 2020; Sakiris & Berle, 2019). However, despite evidence of their usefulness, all reviews point out that the heterogeneity of the publications and certain methodological limitations make it impossible to establish the specificity of each treatment in provoking the relevant clinical change. Very few studies have been designed to investigate the effect of transdiagnostic conditions and their role in the clinical change or to establish the specificity of the interventions (Cuijpers et al., 2019). This is a subject which is of particular interest in ACT and BA. Both contextual therapies, despite being substantially different in their proposals, coincide in conceptualizing depression in terms of contextually controlled repertoires of avoidance, and in the use of largely redundant intervention strategies. However, there is no evidence in terms of component analysis to determine which of its multiple treatment techniques or components are empirically justifiable, when each one should be employed, and for which specific problems (Kanter et al., 2006).

To sum up, published results which show the usefulness of both contextual and cognitive-behavioral transdiagnostic therapies also coincide in calling for an analysis of the differential efficacy and specificity of each therapy in the clinical change. Furthermore, of the contextual therapies, although BA and ACT understand the nature of the psychological problem in the same way, the focus of attention and the weight given to the different therapeutic tasks/resources is different in each one (Kanter et al., 2006; Levin et al., 2020). A further question regards whether the adaptability of the contents of the TD-CBT leads to these interventions focusing only on what the treatments have in common, applying the shared principles and strategies, rather than on those factors functionally involved in the emotional problems (Sauer-Zavala et al., 2017). In line with this transdiagnostic approach to psychological problems, we consider experiential avoidance and behavioral activation to be universal processes which are at the root of the onset, maintenance and treatment of those problems (Fernández-Rodríguez et al., 2018).

Specific Objectives

This study aims to examine the efficacy of BA, ACT and TD-CBT in changing clinical manifestations of anxiety and depression and to analyze the role played in those changes by EA, CF and A response patterns. In order to achieve these objectives, a longitudinal, randomized clinical trial was carried out. The results of the three therapies were compared with each other and with a waiting list control group. This design made it possible to compare therapies and to analyze the results of each one independently and over time. Given the prevalence of emotional problems in our society, therapies were applied on a group basis with a view to increasing the efficiency of the treatment. For all the reasons stated above, the relevance of this study lies in its contribution to improving the efficiency of the psychological treatments and to increasing our knowledge of the factors responsible for clinical change.

Method

Study Design

Ethical approval for the present study (TRANSACTIVA) was provided by the Research Ethics Committee of the Principality of Asturias, Spain (Ref. 208/18), and all procedures were in accordance with the ethical standards of the Helsinki Declaration. Through posters and explanatory brochures, information regarding the aims and admission criteria of the TRANSACTIVA study was provided in health and community social centers of the Principality of Asturias. The information was also disseminated through the local mass media (press, radio, TV). The TRANSACTIVA study was carried out in the Unit of Clinical Psychology and Health (UPCS) of the University of Oviedo, Spain, a Research Unit of Clinical and Health Psychology. UPCS members are professors and researchers of the University of Oviedo qualified for the clinical practice of Psychology. Potential participants in UPCS studies were able to link through to a website specifically designed for each study. Those interested in TRANSACTIVA completed a brief telephone screening to establish preliminary study eligibility. Potentially eligible individuals signed a written informed consent and were scheduled for an in-person baseline visit when final study eligibility was confirmed.

Participants had to meet the following criteria: (a) between 18 and 65 years of age; (b) scores ≥ 10 in either subscale of the Hospital Anxiety and Depression Scale (HADS, Zigmond & Snaith, 1983). Participants were excluded if they (a) were receiving another type of psychological therapy; (b) suffered physical or cognitive deterioration which might hinder participation in the therapy; or presented either (c) a substance use disorder, (d) diagnosis of severe mental disorder or (e) communication problems (literacy, language comprehension) that would make it difficult to participate in (group) interventions.

Those who met study criteria were called for an intake interview during which inclusion and exclusion criteria were checked again. Potential participants were able to ask questions about the study, received detailed information regarding practical issues and were requested to fill out the informed consent form. In this context, a clinical psychologist carried out a clinical interview with each of the potential participants, questioning them about the following conditions: manifestations of anxiety and depression; maintenance/ reductions in relevant and rewarding activities; avoidance response patterns to activities/thoughts/emotions as a distress control strategy; interference of thoughts/emotions in maintaining relevant activities. Each condition was explored in the different contexts of the daily life of each person. Finally, participants were asked to fill out the assessment instruments. Taking into account all the information collected in the clinical interview and questionnaires, the principal researcher together with the clinical psychologist who had carried out the interview, analyzed the functionality of the strategies with which the potential participants confronted their emotional distress. This information was taken into account when assigning and applying the treatments. In the light of empirical evidence showing experiential avoidance and a loss of activation to be response patterns which are both involved in the development of emotional disorders and associated with therapeutic benefit, an attempt was made to balance both response patterns when allocating subjects to therapy groups in order to limit the potential influence of these patterns on treatment outcomes. Thus, the participants were classified as (a) “active” (predominance of EA), when on a daily/weekly basis, the subject showed avoidance response patterns of distressing experiences and thoughts, but maintained (without delegating or abandoning) day-to-day activities/responsibilities which were relevant to his/her life; or (b) “inhibited” (predominance of loss of A), when, on a daily basis, the subject abandoned/delegated relevant activities and day-to-day responsibilities and this

behavior represented, in a functional way, the main control strategy in the face of emotional distress.

Once this evaluation process was completed, the participants who met the inclusion criteria and were able and agreed to participate were subsequently randomized. Using a computer-generated randomization list, the principal researcher assigned participants to three experimental groups (BA; ACT; TD-CBT) and a waiting list control group (WL). The randomization was carried out with the restriction that in each of the four experimental conditions there should be a similar number of participants with active vs inhibited response patterns, thus ensuring a similar representation of both emotional distress control strategies in each study group.

The clinical psychologists who applied the treatments had not participated in either the randomization or allocation of the participants. However, it was not possible to carry out a double blinding since, as specialists in the interventions being investigated, they would inevitably recognize the experimental assignment of their intervention group. On completion of the intervention (or the same period for the WL) and in follow-ups carried out 3 and 6 months later, the assessment instruments were again applied to all participants. Each person filled out the questionnaires individually in an independent room without the presence of clinical staff. Those randomized to the WL condition were offered the opportunity to participate in one of the therapies studied after the follow-up evaluation had been completed. This data is not included here. In line with the study protocol, participants received free psychological care but no financial compensation. Details of the study process are shown in Figure 1.

Please, insert here Figure 1.

Participants

One hundred seventy-two people were evaluated, one hundred twenty-eight of whom fulfilled the inclusion criteria of the study and were randomly assigned to one of the four study groups. Ninety-nine people completed the treatment, 94 completed the 3-month follow-up and 92 the 6-month follow- up. The drop-out rate was similar in all the experimental groups ($\chi^{2(3)}=2.89$, $p = .410$), and was mainly a result of problems attending the programmed sessions for personal reasons (e.g. timetable incompatibility, looking after family members). The sample size was established taking into account the size of the target population in the Principality of Asturias (Spain), that is, those who had requested psychological assistance and fulfilled the diagnostic criteria for anxiety and depression (Valencia et al., 2014). The final sample size (n = 128) reached adequate levels of representativeness (confidence 90%, margin of error 6%) See Figure 1 for CONSORT diagram.

Table 1 shows the descriptive statistics corresponding to the sociodemographic and behavioral pattern and the mean scores and standard deviations for the dependent variables at pre-treatment.

Please, insert here Table 1.

Treatment Conditions

Active treatments consisted of 8 weekly, group-based (maximum 6 people), 90-min sessions. The therapies were applied following protocols designed ad hoc for the study based on reference manuals. Sessions were structured as follows: review of work done between sessions and feedback regarding patient adherence; work on those aspects programmed for the session; planning of work for the following week and an attempt to maximize treatment adherence. Therapists put special emphasis on explaining the goal of

each assignment and the best way to execute it, and on motivating participants by complimenting them on progress. The objectives and procedures of each of the interventions are described below. Content of the sessions is shown in Table 2.

Please, insert here Table 2.

Behavioral Activation (BA)

The BA was aimed at re-establishing day-to-day routines and relevant activities, at increasing rewarding activities and modifying experiential avoidance patterns. During the sessions, the therapist taught participants to analyze their behavior in contextual terms (day-to-day routines, interference of emotions and thoughts in their goals, emotional symptoms and limitations). The aim was for participants to learn to observe the relationship between what they did, felt and thought and what was happening around them and, consequently, to identify the conditions which maintained, increased or weakened particular behaviors. Functional behavior analysis was the key procedure throughout the therapy, used in the evaluation, planning and reviewing of changes introduced by participants between sessions. Work between sessions was programmed with a view to developing/re-establishing relevant and rewarding day-to-day routines which were likely to offer reinforcement in each participant's environment. Worthy of note is the fact that the therapist ensured that participants were able to recognize not only what behavior to adopt (what and how to) but also those contingencies with high probability of reinforcing behaviors which were healthy and important for them (when and where). The principal techniques employed were self-observation and self-report, elaboration of activity hierarchies, behavior programming, rehearsal and behavior modelling, and contingency management. When clients were struggling with avoidance as a barrier to activation, acronyms or metaphors were sometimes used (Martell, 2013). When participants lacked

adequate behavioral repertoires, training in social skills and problem-solving was also given.

Acceptance and Commitment Therapy (ACT)

The aim of the ACT was to increase psychological flexibility by focusing, throughout the therapy, on the six processes included in it (mentioned above). Opening sessions were aimed principally at reducing experiential avoidance, inflexible attention, attachment to the conceptualized self and cognitive fusion. From the fifth session, the therapy focused particularly on increasing the subjects' connection with values and their commitment to worthwhile actions. Ultimately, the therapy seeks to increase contact with direct experience and create more flexible and value-oriented repertoires that will persist in the presence of previously avoided private events. The techniques most commonly used to intervene in the different processes were metaphors and experiential exercises. Nevertheless, ACT, like BA, is principle-based, explicitly encouraging the use of any intervention techniques consistent with its underlying principles. Consequently, in order to increase commitment to valuable actions, other techniques can also be used, for example, behavior rehearsal and modelling, behavioral programming, contingency management and/or skills-training. When planning valuable actions, functional behavioral analysis was also used. The goal is for the client to experience the functional consequences of avoidance behavior (which is the same goal as functional analysis in BA). However, because of the ACT notion of experiential avoidance, the functional assessment emphasized the role of verbal rules in preventing contact with external environmental events. Work between sessions always involved making changes to the processes focused on in each session.

Cognitive-Behavioral Transdiagnostic Therapy (TD-CBT)

This intervention focuses on the interaction between thoughts, feelings and behaviors related to the genesis of emotional experiences. Firstly, groups worked on

motivation, commitment to the treatment and preparing for change. In this module, participants were taught about the adaptive nature of emotions and their components (thoughts, physical sensations and behaviors) and to be more aware of patterns of emotional response by registering emotional experiences. The intervention then focused on developing alternative, more well-balanced thoughts. Cognitive evaluation and re-evaluation were introduced to teach participants to consider the function of automatic evaluations and of the interaction between cognition, behavior and physical sensation. Another module was the identification and prevention of patterns of emotional avoidance. This module aimed to identify and modify maladaptive behaviors or emotion-driven behaviors, and also to change emotional response patterns. This involved training in problem-solving skills and assertiveness. Training was given to increase awareness of and tolerance to the physical sensations of the emotional experience through exposure. The final stage focused on relapse prevention. It included self-evaluation of the skills practiced and the progress made, anticipation of future difficulties and the establishment of long-term aims together with the steps required to achieve them.

Therapists and Treatment Adherence

Therapy was administered by clinical psychologists with post-university training in BA, ACT and TD-CBT. Therapies were described in detailed session-by-session protocols to maintain treatment fidelity. In order to ensure adhesion of clinical psychologists to therapeutic protocols, the intervention sessions were video/audio-recorded and weekly supervision sessions were held by the principal researcher of the study. In addition, regular peer-to-peer coaching and supervision meetings were held to ensure protocol adherence.

Instruments

Hospital Anxiety and Depression Scale (HADS) (Zigmond & Snaith, 1983)

The HADS is a 14-item scale with 2 subscales, Anxiety (HADS-A) and Depression (HADS-D). The total HADS score (HADS-T) ranges from 0 to 42 while the subscales range from 0 to 21. In depression and anxiety subscales, scores of 8–10 indicate probable cases and scores over 10 indicate clinical cases. The sensitivity and specificity of these cut-off points are between .70 and .90. The Spanish version obtains internal consistency levels of .86 in both scales (Quintana et al., 2003). The values of internal consistency reliability in the study sample range from .64 to .87 for the anxiety scale and for the depression scale between .80 and .86

Short form of the 1978 Beck Depression Inventory (BDI-IA) based on the cognitive-affective subscale (BDI-IA-SCA) (Beck & Steer, 1993)

Consists of the first thirteen items of the BDI-IA, referring to affective-cognitive symptoms of depression**.** Sanz and García-Vera (2007) found α coefficients > .70 in three Spanish samples and an acceptable index of diagnostic precision (area under the ROC curve = .81). Based on the total score, four levels of severity can be distinguished: minimal (0–6), light (7–11), moderate (12–20) and serious (21–39). This data confirms the suitability of this instrument when it is important that the instrument be administered quickly. The values of internal consistency reliability in the study sample range from .84. to .92

Generalized Anxiety Disorder-scale 7 (GAD-7) (Spitzer et al., 2006)

GAD-7 is a one-dimensional scale designed to assess the presence of the symptoms of generalized anxiety disorder (GAD) referred to in the DSM-IV. Total scores range from 0 to 21, with higher scores indicating greater severity of anxiety Scores of 5, 10 and 15 represent cut-offs for mild, moderate and severe anxiety, respectively. When screening for an anxiety disorder, a recommended cut-off for referral for further evaluation is ≥10. Using

a cut-off of 10 points, the reported sensitivity and specificity of the original version is .89 and .82, respectively, whereas the corresponding values on the Spanish version validated by García-Campayo et al. (2010) are .86 and .93, respectively. The values of internal consistency reliability in the study sample range from .79. to .89.

Environmental Reward Observation Scale (EROS) (Armento & Hopko, 2007)

A self-administered questionnaire which supplies information regarding the quantity and availability of reinforcement received from the patient's environment. It consists of 10 items, answered using a 4-option Likert scale. Higher scores indicate a greater quantity and availability of reinforcement. The Spanish adaptation was used (Barraca & Pérez-Álvarez, 2010), for which data is available confirming its reliability (α = .86) and validity (high correlations with the BDI-II, BADS, STAI-S/T, AAQ; significant differences between clinical and non-clinical participants). The values of internal consistency reliability in the study sample range from .76. to .87

Acceptance and Action Questionnaire-II (AAQ-II) (Bond et al., 2011)

This is a self-rating questionnaire designed to measure experiential avoidance and psychological inflexibility. It consists of 7 items, answered using a 7-point Likert scale. High scores indicate a greater degree of experiential avoidance and psychological inflexibility. The Spanish translation showed good internal consistency (α = .88) and the factor analysis showed a one-factor solution (Ruiz et al., 2013). The values of internal consistency reliability in the study sample range from .86. to .93.

Behavioral Activation for Depression Scale (BADS) (Kanter et al., 2007)

Consists of 25 items using a 7-point Likert scale measuring four dimensions: activation (BADS-A), avoidance/rumination (BADS-A/R), work/school impairment

(BADS-WSI) and social impairment (BADS-SI). High scores in activation show a higher level of activation, whilst higher scores in the other dimensions indicate a greater degree of impairment. The Spanish adaptation (Barraca et al., 2011) proved to be valid (significant correlations with the BDI-II, AAQ, ATQ, MCQ-30, STAI and EROS) and had internal consistency ($.76 \leq \alpha \leq .90$). Factor analysis confirmed the four dimensions of the original instrument. In the sample used, the reliabilities obtained were of $\alpha = .79$-$.88$ for BADS-A; $\alpha = .70$-$.87$ for BADS-E/R; $\alpha = .83$-$.89$ for BADS-WSI; $\alpha = .70$-85 for BADS-SI.

Cognitive Fusion Questionnaire (CFQ; Gillanders et al., 2014).

The CFQ is a seven-item scale assessing cognitive fusion. Higher scores reflect higher degree of cognitive fusion. The English validation of the CFQ showed that it possesses a one-factor structure, internal consistency ($\alpha = .80$ - $.90$), positive correlations with measures of experiential avoidance, frequency of negative thoughts, depression and anxiety symptoms, and good sensitivity to treatment effects. The Spanish version showed a one-factor structure, good internal consistency (Cronbach's alpha of .87), and convergent validity (Romero-Moreno et al., 2014). The values of internal consistency reliability in the study sample range from .86. to .95

The Emotion Regulation Questionnaire (ERQ: Gross & John, 2003)

The ERQ is a 10-item self-report scale assessing two individual strategies adopted by people in order to regulate their emotions: cognitive reappraisal and expressive suppression. Both measures were taken as criteria for the usefulness of the TD-CBT procedures to act on emotional regulation. Recent validation studies with general population samples confirm the bifactorial structure of the questionnaire and internal consistency reliability levels from acceptable to excellent (cognitive reappraisal; $\alpha = .89$-$.90$) (expressive suppression; $\alpha = .76$-$.80$) (Preece et al., 2021). The questionnaire was

validated using a Spanish population and its psychometric properties were confirmed (Martín-Albo et al., 2020). In the sample used, the reliabilities obtained were of α = .84 - .85 for ERQ-R and α = .76 - .84 for ERQ-S.

Data analysis

Descriptive statistics were calculated on demographic and clinical variables across groups and over time. Baseline differences between groups were explored using chi-square and one-way analysis of variance (ANOVA). Due to the excessive influence of sample size in the normality tests, the assumption of normality was explored using the kurtosis and skewness statistics, their associated standard error and the Q-Q plot. Only the anxiety subscale of the HADS at baseline, CFQ at baseline, and the cognitive reappraisal ERQ subscale at 6-months presented non-normal distribution of residuals according to the established cut-off (Kim, 2013). Nonetheless, the statistical approach followed for the main analyses proved to be robust to deviation of the normality assumption (Blanca et al., 2013; Kirk, 2013).

A twofold repeated-measures approach was used with one within-subject variable with four levels (arm: BA, ACT, TD-CBT, WL) and one between-subject variable with four levels [time: baseline, end-of-treatment (EOT) and follow-ups at 3 (3-M FU), and 6 (6-M FU) months]. The first approach used data from participants attending all assessments (i.e., per protocol analysis) in a general linear model (GLM), under the assumption of missing at random or missing completely at random. The second approach used data from all participants regardless of the missing data (i.e., intent-to-treat analysis) in a mixed linear model (MLM). In the GLM, the sphericity and homoscedasticity assumptions were explored, and the results were corrected by the degree of freedom when needed, through either the Greenhouse-Geisser (sphericity < .75) or Hyunh-Feldt

(sphericity ≥ .75) corrections. Due to the small and unbalanced sample sizes, the Pillai's Trace statistic was used for inferences to ensure the robustness of results (Tabachnik & Fidell, 2013). Post-hoc and effect sizes were calculated using Bonferroni correction and eta squared (η^2), respectively. Due to the significant differences between treatments in sex and age, these variables were included in the model as covariates.

Results

Preliminary analysis

There were significant differences between treatment groups in both sociodemographic and clinical variables. Participants in the TD-CBT were more likely to be females compared to the other groups and also were younger and reported lower depression according to the HADS, compared to BA. Participants in the WL were less likely to be female compared to the other groups (see Table 1).

Between- within-subject main effects and interactions

The between-subject omnibus test showed no significant main effect of any of the covariates (sex: $p = .092$; age: $p = .240$). In terms of within-subject effects, the interactions of sex ($p = .435$) and age ($p = .311$) with time were not significant. However, there was significant interaction between treatment group and time [$F(117, 1881) = 1.59$, $p < .001$, $\eta^2_{partial} = .09$], suggesting different evolution of each treatment option over time. As main effects of or interactions with covariates were not significant, they were removed from the model before conducting the subsequent analyses.

As regards the longitudinal differences in clinical variables across treatments, the GLM showed a main effect of time for HADSA ($p < .001$), BDI ($p < .001$), AAQ ($p < .001$), ERQR ($p = .002$), and ERQS ($p < .001$), suggesting reductions in these variables over time independently of the intervention received (see Table 3). Also, there was a

significant interaction between time and treatment for HADSD (p = .012), GAD (p = .036), EROS (p < .001), BADSA (p = .004), BADSL (p = .003), BADSS (p = .011), BADSER (p = .009), and CFQ (p = .001). These significant interactions suggest that changes in clinical variables differ between interventions. Regarding the cross-sectional comparisons, there are significant differences between treatments at EOT (p = .014, η^2_{partial} = .256), and 3-M FU (p = .035, η^2_{partial} = .239], but not at 6-M FU (p = .078, η^2_{partial} = .223), despite the similar effect size. Significant longitudinal and cross-sectional changes in clinical variables over time and between assessments are reported below, grouped by dependent variables.

Please, insert here Table 3

Anxiety and depression symptoms

HADS. Scores in both HADS subscales were significantly lower at EOT and FU in all arms, compared to the baseline (see supporting information, Table S1). Considering each assessment independently, participants in the three active treatments (BA: p < .001; ACT: p = .042; TD-CBT: p = .017) reported significantly lower anxiety symptoms at EOT than those in the control group. Regarding depression, only BA (p = .039) and TD-CBT (p = .002) significantly differed from the waiting list. At 3-month follow up, individuals in the BA and TD-CBT treatments reported less anxiety (p = .016 and .046) and depressive (p = .015 and .016) symptoms than those in the waiting list. Despite the non-significance of the omnibus test, post-hoc comparisons at 6-M FU revealed significant lower anxiety scores in the BA (p = .010) and TD-CBT (p = .046) groups and lower depression in the BA group (p = .012) compared to the WL. Regarding the MLM, none of the results at 3-M FU were significant. At EOT, only anxiety scores of the BA group differed significantly from the WL (p < .001). Post-hoc comparisons also suggested better results of BA over the WL (p = .043) for anxiety at six months. Regarding depression, in the MLM only individuals in the TD-CBT group presented significantly lower symptoms than the WL (p = .014).

BDI. BDI scores were significantly higher at the baseline compared to EOT and FU in all active treatments. BDI scores in the WL group significantly decreased from baseline and EOT to 6-M FU (see Table S1). In cross-sectional analyses, participants in the three active treatments (BA: $p = .001$; ACT: $p = .027$; TD-CBT: $p = .006$) reported significantly lower depressive symptoms at EOT than those in the control group. These differences remained significant at 3-M FU only for participants in the BA ($p = .011$) and TD-CBT ($p = .017$) arms. Differences between BA and WL remained significant at 6-M FU ($p = .023$). Regarding the MLM, only the BA group differed from the WL at EOT ($p = .006$). Results at 3-M FU were not significant.

GAD. Anxiety symptoms according to the GAD decreased significantly from baseline to EOT and all FUs in the BA, ACT, TD-CBT, but not in the WL (see Table S1). At EOT, participants in the three active treatments (BA: $p < .001$; ACT: $p = .001$; TD-CBT: $p = .005$) reported significantly lower GAD scores at EOT than those in the control group. At 3- and 6-M FU, these differences remained significant only for participants in the BA ($p = .002$ and .011) and TD-CBT ($p = .006$ and .013) arms. Also, individuals in the BA group presented lower scores than those in the ACT group ($p = .024$). Regarding the MLM results, results from the ACT group did not differ from the other active groups. At EOT, participants in the BA ($p = .001$) and ACT ($p = .005$) groups reported lower anxiety than those in the WL group. As in the previous variables, no result at 3-M FU was significant but at 6-M FU, post-hoc comparisons suggested a better outcome for BA compared to the WL ($p = .027$).

Transdiagnostic factors

AAQ. AAQ scores were significantly reduced at EOT and FUs compared to baseline in all treatments. The scores in the WL group significantly decreased from baseline to FUs (see Table S1). At EOT, BA ($p = .001$) and TD-CBT ($p = .003$) groups scored lower in the

AAQ than WL. These differences were maintained at 3-M FU (BA: $p = .012$; TD-CBT: $p = .024$) but only remained significant for the BA group ($p = .011$) at 6-M FU. MLM results yielded significant results only for the BA-WL comparison at EOT ($p = .019$) and 6-M FU ($p = .032$).

CFQ. The CFQ scores were significantly lower at EOT and FUs compared to the baseline in all active treatments (see Table S1). Regarding the cross-sectional analyses, the three active treatments reported significantly lower scores at EOT compared to the WL (BA: $p < .001$; ACT: $p = .004$; TD-CBT: $p = .016$). Individuals in the BA group also reported lower scores than those in the TD-CBT ($p = .037$). At 3- and 6-M FU, participants in the BA ($p < .001$ and .003) and TD-CBT ($p = .010$ and .013) groups reported lower scores than those in the control group, and those in the BA also presented lower scores than those in the ACT group ($p = .003$) at 3-M. Regarding the MLM, at EOT, only participants in the BA group scored lower than WL ($p < .001$). Differences between BA and TD-CBT remained significant ($p = .027$). At 3- and 6-M FU, only the BA group reported lower scores than the control group ($p = .006$ and .013).

EROS. Scores were significantly higher at the EOT and FUs compared to the baseline in all active treatments. Regarding the WL, scores at 3-M FU were significantly higher than at baseline but not than at EOT (see Table S1). Considering each assessment independently, participants in the three active treatments at EOT reported significantly higher in the EROS than those in the control group (BA: $p = .012$; ACT: $p = .013$; TD-CBT: $p = .038$). At 3- and 6-M FU, only participants from the BA group scored higher than the WL ($p = .019$ and .010). As regards the MLM results, only BA ($p = .003$) and ACT ($p = .006$) differed significantly from the WL at EOT. Results at 3- and 6-M FU confirmed those from the GLM ($p = .027$ and .022).

BADS-A. Scores in the BADS-A were significantly higher at the EOT and all FUs compared to the baseline in all active treatments (see Table S1). Considering each assessment independently, participants in the three active treatments at EOT reported significantly higher, compared to those in the control group (BA: $p = .008$; ACT: $p = .001$; TD-CBT: $p = .005$). At 3-M FU, only participants from the BA ($p = .031$) and TD-CBT ($p = .020$) groups scored higher than the WL, and differences between TD-CBT and WL remained significant at 6-M FU ($p = .019$). Although results at 3- or 6-M FU in the MLM were not significant, differences at EOT were maintained.

BADS-SL. Scores in the BADS-SL were significantly lower at the EOT and all FUs compared to the baseline in all active treatments. Regarding the WL, scores at 6M-FU were significantly higher than at baseline (see Table S1). Considering each assessment independently, participants in the three active treatments at EOT reported significantly higher, compared to those in the control group (BA: $p = .037$; ACT: $p = .002$; TD-CBT: $p = .010$). Results from the MLM indicated that, at EOT, only BA ($p = .045$) and ACT ($p = .016$) differed from the WL.

BADS-S. Scores in the BADS-S were significantly lower at the EOT and FUs compared to the baseline in all active treatments (see Table S1). At EOT participants in the BA group reported significantly lower scores than controls ($p = .001$) and TD-CBT ($p = .013$). However, while those in the TD-CBT presented lower scores than control at 3-M FU ($p = .040$), significant differences at 6-M FU appeared between BA and WL ($p = .012$). As regards the MLM, results involving data at 3- or 6-M FU were not significant.

BADS-ER. BADS-ER scores were significantly lower at the EOT and all FUs compared to the baseline in all active treatments (see Table S1). At EOT, the three active treatment groups reduced their scores significantly compared to the WL (BA: $p < .001$; ACT: $p = .003$; TD-CBT: $p = .003$). These differences were maintained at 3- (BA: $p = .008$; ACT: p

= .006; TD-CBT: p = .031) and 6-M FU (BA: p = .001; ACT: p = .048; TD-CBT: p = .025). Results from the MLM indicated that, at EOT, only BA (p = .002) and ACT (p = .010) differed from the WL. These differences were maintained through follow-ups for the ACT group (3-M: p = .007; 6-M: p = .016) and at 6-M for the BA group (p = .001).

ERQ. ERQ-S scores were significantly higher at the baseline compared to EOT and 3-M FU in all active treatments except in BA and 6-M compared to baseline in the WL. ERQ-R scores were significantly lower at the baseline compared to EOT in BA and TD-CBT groups (see Table S1). At EOT (p = .017) and 3-M FU (p = .015), ERQ-S scores in the BA group were significantly lower than in the WL group. The MLM yielded no significant differences for any of the ERQ subscales.

Discussion

There exists ample evidence of the role played by experiential avoidance (Hayes et al., 1996), cognitive fusion (Hayes et al., 2011) and activation (Manos et al., 2010) in the development and maintenance of emotional disorders. Similarly, there is evidence indicating the usefulness of BA, ACT and TD-CBT in the treatment of these disorders. Although the procedures of these therapies suggest that they act on the aforementioned response patterns, insufficient research has been carried out into the role of these transdiagnostic factors, and the specificity of each therapy in the clinical change.

The fact that the sample comprises people who had requested psychological help in different community centers makes it easier to generalize the results to the population of sufferers of emotional distress as a whole. This fact also explains the majority presence of women amongst the participants. It is well known that, for cultural reasons, women seek medical help more frequently than men, and also are more likely to receive a psychopathological diagnosis (Bacigalupe & Martín, 2020). Although the distribution of

participants amongst the groups was strictly random, there was still a significantly higher number of women in the TD-CBT and WL groups than in the rest. Furthermore, those who received TD-CBT were younger and with a lower degree of depressive symptomatology (HAD-D). In order to check that these characteristics did not play any role in modulating the results, sex and age were analyzed as covariates. There were no significant inter- or intra-subject effects so it can be affirmed that differences in age and sex did not bias the evolution of the results.

The lower initial level of depressive symptomatology in the TD-CBT group is understandable given that the inclusion criteria did not include the concurrence of anxiety and depression. An inclusion criterion which contemplated the presence of both clinical conditions would have meant reducing the variability in the intensity of emotional distress amongst the participants, and consequently, also the representativity of the sample. It should be borne in mind that a high comorbidity is directly related to the intensity of the emotional distress (Groen et al., 2020; Schaakxs et al., 2018). Nevertheless, the fact that in the TD-CBT group participants showed less depressive symptomatology could suggest that these subjects had a lesser degree of emotional problems and/or that their distress could be the result of different factors. We will return to these considerations when analyzing the evolution of the participants in all groups.

The first result of great interest is that over time, and regardless of the experimental group, the sample showed a favorable evolution in anxiety symptomatology (HAD-A) and depression (BDI) and a reduction in EA patterns (AAQ). Other controlled studies and meta-analyses which have also reported a favorable evolution of emotional disorders both in psychotherapy and waiting list or placebo control groups refer to the spontaneous remission effect to explain the clinical improvement (Bandelow et al., 2018; Strawbridge et al., 2019). So-called spontaneous remission or spurious therapeutic effectiveness is

attributed to various factors. It may be due to the presence of different methodological biases, or maybe the results have been modulated by certain characteristics of the subject or certain changes in his/her interaction contexts (Lilienfeld et al., 2014). In our case, given that every effort was made to ensure that the study offered all the appropriate experimental guarantees, the reduction in the patterns of EA appears to be the modulating characteristic of the improvement in emotional symptomatology. The proposal that EA is a transdiagnostic pattern functionally related to emotional symptoms is well established (Cookson, 2020; Hayes et al., 1996). Although questions have been raised as to whether the AAQ-II measures EA or other related constructs accurately (Wolgast, 2014; Ong et al., 2020), numerous studies validate the guarantees it offers as a means of measuring EA (Bond et al., 2011; Ruiz et al., 2013).

Indeed, it is precisely when the longitudinal evolution of the experimental and control groups is analyzed that the importance of the role played by EA in the evolution of the emotional symptomatology becomes clear. In all therapeutic groups, all the measures of anxiety and depression decreased more quickly and in a more stable manner than in the WL. Also, in the therapy groups, changes in each evaluation indicated generalized increase in psychological flexibility (A, EA and CF). In the WL, in contrast, all measures of emotional symptoms only decreased in the first follow-up and coincided with a reduction in patterns of EA and CF, and a moderate and isolated increase in A. This suggests that the increase could have been an effect derived from the decrease in avoidance. In the therapeutic groups, the emotional improvement and the response-pattern changes could be attributed to the specificity of the treatments. In the intervention-free WL, however, they could only be related to changes in the people's lives. These changes may have involved an increase in exposure to working environments (as indicated by scores in the BADS-L), with the subsequent reduction in experiential avoidance reflected in the lower AAQ-II and

CFQ scores. Furthermore, despite not being statistically significant, the number of people in the WL who showed patterns of inhibition prior to the treatment was lower than those showing activation. This could explain a greater willingness of the participants in this group to maintain contact with their environments. All the data suggest that changes in avoidance patterns are a facilitating condition of clinical change, even in the absence of therapeutic intervention.

Regarding the usefulness of the therapies, all groups showed greater benefits than those produced over time. All showed greater reductions in symptoms of anxiety (GAD) and depression (HAD-D). All managed to expose and activate the subjects in the contexts of their daily lives, leading to greater increases in their commitment to relevant/valuable activities (BADS-A), in the daily rewards received (EROS) and in sensitivity to contingencies (reducing tendencies to regulate behavior using cognition -CFQ- and experiential avoidance -BADS-ER-). All these facts confirm the role of A, EA and CF as factors which are functionally involved in the maintenance of anxiety and depression. The other question is the specificity of each therapy in promoting change. As regards the effect of BA and TD-CBT on the symptomatology of anxiety (HAD-A; GAD), cross-sectional analyses suggest that the two therapies have a similar ability to reduce these symptoms and achieve an improvement which is significantly greater than that observed over time. The coincidence of the MLG and MLM results suggest the superiority of BA in maintaining clinical improvement. ACT, however, does not seem to be able to extend improvement beyond the post treatment. The evolution of this group, although positive, was not different from WL. As regards depression, BA was the only therapy which maintained reductions greater than those observed in the WL until the 6-month follow-up, and this improvement can be seen in all the measures (HAD-D; BDI). ACT and TD-CBT performed similarly in reducing cognitive depressive symptomatology (BDI). All three therapies proved to be

more useful in reducing anxiety, although BA had the added advantage that its effects were maintained in the follow-ups. It is possible that the greater initial presence of anxiety symptomatology in the sample may have made the changes in this condition stand out more. BA was also the therapy which achieved a more prolonged reduction in symptomology of depression. In line with these results, numerous systematic reviews have shown better outcomes at post-treatment for BA (Coto-Lesmes et al., 2020_a; Simmonds-Buckley et al., 2019), ACT (Gloster et al., 2020; Stenhoff et al., 2020), and CBT (Andersen et al., 2016; Cassiello-Robbins et al., 2020; Sakiris & Berle, 2019), compared to WL.

The same studies also report, however, that the effects of the therapies appear to weaken in the medium-long term and when they are maintained, the effect size of the results is small. It has even been suggested that the treatment effects observed in follow-up periods may have been overestimated due to the effects of spontaneous remission (Bandelow et al., 2018). The use of a waiting list control group made it possible to check for spurious improvements and thus demonstrate the efficacy of all therapies. For this reason, the consistency of the results between MLG and MLM is of particular interest, and it is the fact that this consistency is greatest in the BA group that allows us to consider BA to be the most beneficial intervention.

In terms of capacity to provoke an increase in participants' Activation, it was the contextual therapies which were the most useful and specific. The TD-CBT only achieved an increase in A greater than that found in the WL in follows-up. This absence of effect in the short- and medium-term suggests that procedures aimed at cognitive control of emotions and behaviors are not specific in increasing and consolidating involvement in rewarding activities. The diversity of the results for the TD-CBT interventions supports the need for dismantling studies to identify which elements are active (Cassiello-Robbins et al.,

2020). It is possible that the initial orientation towards action observed in the TD-CBT group could have been a result of the therapeutic relationship, one of the active ingredients of psychotherapy (Martell et al., 2013; Norcross & Lambert, 2018). In the BA and ACT groups, the increase in commitment to relevant activities (BADS-A) was significantly maintained up to the first follow. However, only in the BA was it consistently maintained over time (MLG and MLM), particularly in relation to rewarding activities in social environments (EROS, BADS-S). All data appear to support the superiority of the contextual approach and specificity of the BA procedures in increasing people's commitment to that which is important to them, thereby activating their day-to-day sources of reinforcement (Chu et al., 2016; Jacobson et al., 2001; Martell et al., 2001: Santos et al., 2017).

The mediating role of reward as an active mechanism of BA is usually investigated using self-reports (EROS). However, the strong negative cross-sectional correlation of the EROS with depressive symptoms precludes the establishment of a temporal relationship between environmental rewards and symptoms (Janssen et al., 2021). This information could only be obtained by using evaluation procedures focusing on a single case and analyzed using single-case time series. This point underlines the importance of functional analysis in explaining the contingencies involved in the behavioral pattern changes focused on by each therapy (Overholser & Peak, 2020). For this reason, in this study, a functional analysis of the response patterns of the whole sample was carried out before the interventions began. Indeed, it is possible that BA is most useful precisely because of the importance given in this therapy to functional analysis, which allows participants to learn to recognize the relationship between their behaviors and what is happening around them. That is, the participants learn to detect those public or private conditions in which initiating particular actions (activating their behavior in a particular direction) would be valuable and/or productive for them. It would be the rewarding effects of these actions that would

ultimately strengthen productive behavior and eliminate avoidance. Similarly, the increase in A observed in ACT could also have been facilitated by the use which this contextual therapy makes of functional analysis. In contrast, the TD-CBT, which, although focusing on cognitive control, contains no contextual analysis of the private and public contingencies which may account for behavior, did not succeed in extending the increase in A beyond the treatment. To sum up, functional analysis is an essential tool in promoting a condition which is known to be directly involved in therapeutic benefit.

All the therapies reduced patterns of EA to a significantly greater degree than the waiting list and demonstrated an ability to modify fusion and cognitive control strategies. BA appeared to be the most useful therapy, producing greater and more stable reductions in all the measures of experiential avoidance (AAQ; BADS-ER) and cognitive fusion (CFQ). The only consistent reduction achieved by ACT was in patterns of experiential avoidance-rumination (BADS-ER). This was expected due to the emphasis placed by this therapy on the identification of and changes in EA patterns. TD-CBT also proved to be useful in reducing patterns of EA and CF. As participants in this treatment were on average younger and more likely to be females, these demographic peculiarities may have modulated results. Nonetheless, it is important to highlight the non-significant effect of these co-variables in the model. The well-known greater reflexivity of the female population (Johnson & Whisman, 2013) could explain a greater presence of this distress control strategy amongst the participants in the TD-CBT. This would make the possible change more noticeable when considering the whole group, as MLM seems to suggest. Furthermore, such a change could have been expected given that this treatment is oriented, from the very beginning, towards restructuring cognitions and diminishing ruminations as an emotional regulation strategy (Sauer-Zavala et al., 2020; Yasinski et al., 2020).

The procedures followed in each therapy undoubtedly played an important part in the changes, but it is important to remember that the results may also be modulated by how the patterns of EA and CF are manifested and interact with each other in the participants in the therapy. The bidirectional relationship between the two patterns of psychological inflexibility is considered a firm predictor of emotional anguish and depression (Cookson et al., 2020; Fernández-Rodríguez et al., 2022; Roush et al., 2019). Consequently, if a therapy does not succeed in modifying both patterns of inflexibility, its capacity to modify the emotional symptomatology will very probably be reduced. This seem to be the case of ACT, whose therapeutic benefits were not maintained over time. The fact that the improvement in the depressive symptomatology of this group was only observed in an instrument like the BDI, which mainly assesses the cognitive component, suggests that the work on cognitive defusion carried out during the therapy was effective in modifying cognitive control patterns but insufficient to modify other avoidance behaviors used to avoid distressful situations/experiences. Previous studies comparing ACT with treatment as usual or WL control groups have shown a better performance than the present study (Cookson, et al., 2020; Roush et al., 2019). Nonetheless, very few compare the effects of ACT with BA and its therapeutic ingredients, even less using a sequential assessment of the therapeutic ingredients within treatment. Although no differences are usually found between the two therapies in the post-treatment, there does exist evidence in favor of BA in medium- and long-term results (Fernández-Rodríguez et al., 2019, 2020; González-Fernández et al., 2018; Martell et al., 2004; Hunot et al., 2013; Kahl et al., 2012). Based on our results, it would appear that the best strategy for maintaining the change in the avoidance/control patterns of experiences and thoughts over a sustained period of time should be based, from the very first moment, on encouraging involvement in activities

which are relevant to the subject and consequently incompatible with avoidance. This may account for the superiority of BA.

Cognitive restructuring is a specific objective of the cognitive-behavioral transdiagnostic approach. This approach proposes intolerability and the perception of lack of emotional control as fundamental conditions in explaining emotional distress. The perception of lack of cognitive control can lead to avoidance of negative emotions and/or of the related situations. Paradoxically, the greater the avoidance, the less situations are confronted and the greater the reinforcement of the perception of lack of control (Barlow et al., 2011; Bullis et al., 2019). Consequently, for TD-CBT, cognitive restructuring is a procedure which is of prime importance in modifying perception of emotional experiences and in dealing with emotional regulation. The strategies of cognitive reappraisal (ERQ-R) and expressive suppression (ERQ-S) were modified over time in the TD-CBT group, as they were in the contextual therapies, but not in the WL. The capacity of the therapies to modify these strategies, even though cognitive restructuring was at no time attempted, could be interpreted as a secondary effect of other changes. Amongst the conditions that have been proposed as modulators of dysfunctional cognitive emotional control is the degree of cognitive-behavioral avoidance and self- efficacy in involvement in relevant activities (Gómez-Penedo et al., 2020). This would once again suggest the mediating and therapeutic value of reducing avoidance and increasing activation in response to emotional problems. Indeed, when the therapies are analyzed transversally, BA is the best at reducing expressive suppression.

The results of this study are both solid and congruent. We are, nevertheless, aware that their generalization will require further studies with representative samples and different evaluation procedures which permit a better contrasting of information. With regard to the sex and age of the participants, although these variables did not modulate the

results, it is true that these circumstances do condition both the contingencies of people's day-to-day lives and, to a large extent, their resources and sources of external rewards. Bearing this in mind, this discussion has attempted to outline the key contextual factors which could contribute to explaining these results. However, as mentioned above, a fuller explanation would require other measuring and evaluating procedures such as functional analysis. Furthermore, in light of criticisms regarding the limitations of measures obtained with the EA (Wolgast, 2014) or A (Armento & Hopko, 2007), it would be recommendable to use other complementary instruments in future studies. Future research that includes sequential evaluations after various sections of treatment could contribute to further understanding of how and when changes occur in the processes of EA, A, and CF. There is also a need for an analysis of the clinical significance of the results. Such an analysis, which we are currently working on, could help to improve our understanding of the therapeutic processes. It is particularly important to carry out a more profound study of the role played by verbal processes in the clinical change, an issue on which ACT and BA differ considerably. Although the results of this study appear to suggest that ACT's additional verbal strategies are unnecessary for making contact with contingencies in a person's (current) environment, this is a topic which continues to be open to investigation. Another limitation is the need to add variables not included in this study, such as quality of life or a subjective evaluation of the usefulness of the intervention. Also, the group format does not allow us to extend the results to an individual application of the therapies. Despite strict supervision to ensure that therapeutic protocols were followed appropriately and the fact that they were applied by clinical staff with specific training, the context of group therapy relationships could be a modulating variable of potential changes. Also, the absence of placebo control groups makes it impossible to study these unspecific effects of the therapies.

Conclusion

To sum up, the use of BA, ACT and TD-CBT, applied on a group basis, proved to be efficacious in reducing clinical symptomatology of anxiety and depression. Clinical effects were superior to the favorable evolution observed over time with no intervention. Similarly, after eight treatment sessions, all the therapies succeeded in increasing the involvement of participants in relevant rewarding activities and the number of day-to-day rewards and in reducing their tendency to regulate behavior through cognition and experiential avoidance. After of the intervention, the greater and more prolonged the ability of the treatment to maintain the activation of the participants, the more consistent its effect on clinical emotional symptoms. Of the three treatments, BA seems to be the most efficacious. All the results suggest that A, EA and CF were factors which were functionally involved in the maintenance of anxiety and depression. However, while a reduction in avoidance patterns was a condition which facilitated clinical change, even in the absence of therapeutic intervention, involvement in relevant rewarding activities was the principal condition in modifying patterns of psychological inflexibility. BA appears to be the most useful and most specific therapy for acting on patterns of psychological inflexibility. Applying it on a group basis could facilitate its implementation in contexts of public health care and consequently bring about a greater reduction in the prevalence of emotional problems.

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Authors' Note: Concepción Fernández-Rodríguez and Rocío Coto-Lesmes contributed equally to this study.

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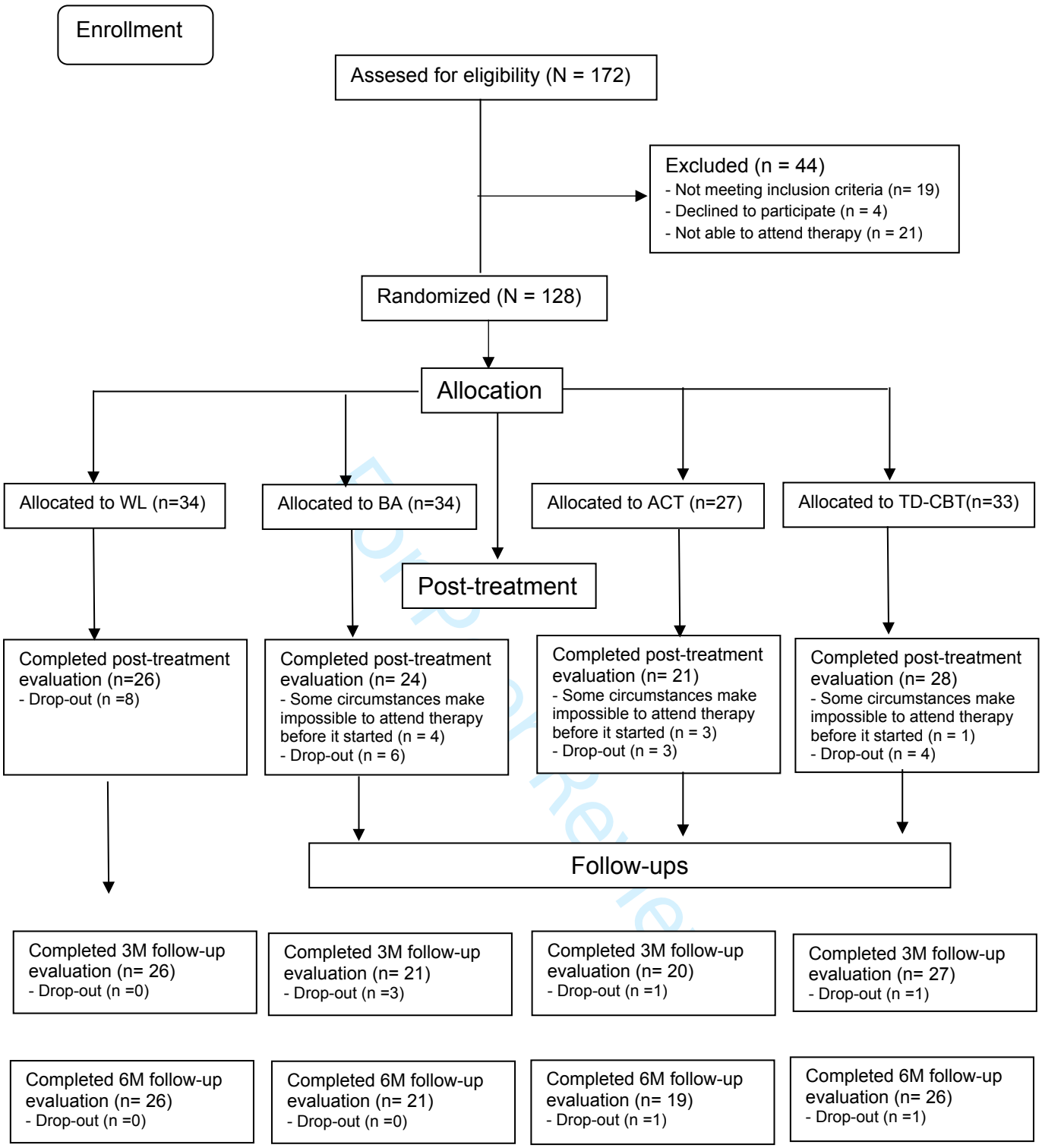
Enrollment
Assesed for eligibility (N = 172)
Excluded (n = 44)
- Not meeting inclusion criteria (n= 19)
- Declined to participate (n = 4)
- Not able to attend therapy (n = 21)
Randomized (N = 128)
Allocation
Allocated to WL (n=34)
Allocated to BA (n=34)
Allocated to ACT (n=27)
Allocated to TD-CBT(n=33)
Post-treatment
Completed post-treatment evaluation (n=26)
- Drop-out (n =8)
Completed post-treatment evaluation (n= 24)
- Some circumstances make impossible to attend therapy before it started (n = 4)
- Drop-out (n = 6)
Completed post-treatment evaluation (n= 21)
- Some circumstances make impossible to attend therapy before it started (n = 3)
- Drop-out (n = 3)
Completed post-treatment evaluation (n= 28)
- Some circumstances make impossible to attend therapy before it started (n = 1)
- Drop-out (n = 4)
Follow-ups
Completed 3M follow-up evaluation (n= 26)
- Drop-out (n =0)
Completed 3M follow-up evaluation (n= 21)
- Drop-out (n =3)
Completed 3M follow-up evaluation (n= 20)
- Drop-out (n =1)
Completed 3M follow-up evaluation (n= 27)
- Drop-out (n =1)
Completed 6M follow-up evaluation (n= 26)
- Drop-out (n =0)
Completed 6M follow-up evaluation (n= 21)
- Drop-out (n =0)
Completed 6M follow-up evaluation (n= 19)
- Drop-out (n =1)
Completed 6M follow-up evaluation (n= 26)
- Drop-out (n =1)

Table 1. Sample characteristics

Variables	Total sample (n = 128)	BA (n = 34)	ACT (n = 27)	TD-CBT (n = 33)	WL (n = 34)	χ^2/F
	n (%)	n (%)	n (%)	n (%)	n (%)	
Sex						**8.26**
Females	99 (77.3)	27 (79.4)$_{a,b}$	21 (77.8)$_{a,b}$	30 (90.9)$_{b}$	21 (61.8)$_{a}$	
Males	29 (22.7)	7 (20.6)$_{a,b}$	6 (22.2)$_{a,b}$	3 (9.1)$_{b}$	13 (38.2)$_{a}$	
Age†	40.50 (12.85)	45.12(12.15)$_{a}$	42.44 (10.89)$_{a}$	35.45 (11.93)$_{b}$	37.21(14)$_{a}$	**4.35**
Marital status						9.97
Single	71 (55.5)	14 (41.2)	13 (48.1)	22 (66.7)	22 (64.7)	
Married/couple	33 (25.8)	11 (32.4)	9 (33.3)	8 (24.2)	5 (14.7)	
Divorced	20 (15.6)	7 (20.6)	5 (18.5)	2 (6.1)	6 (17.6)	
Widowed	4 (3.1)	2 (5.9)	0 (0.0)	1 (3.0)	1 (2.9)	
Employment status						14.42
Working	59 (46.1)	19 (55.9)	14 (51.9)	14 (42.4)	12 (35.3)	
TD	10 (7.8)	3 (8.8)	1 (3.7)	3 (9.1)	3 (8.8)	
PD	2 (1.6)	2 (5.9)	0 (0.0)	0 (0.0)	0 (0.0)	
Unemployed	51 (39.8)	8 (23.5)	11 (40.7)	16 (48.5)	16 (47.1)	
Retired	6 (4.7)	2 (5.9)	1 (3.7)	0 (0.0)	3 (8.8)	
Educational level						13.28
Master/PhD	9 (7.0)	2 (5.9)	3 (11.1)	4 (12.1)	0 (0.0)	
University	64 (50.0)	20 (58.8)	14 (51.9)	17 (51.5)	13 (38.2)	
Vocational	30 (23.4)	5 (14.7)	7 (25.9)	8 (24.2)	10 (29.4)	
High school	14 (10.9)	3 (8.8)	2 (7.4)	3 (9.1)	6 (17.6)	
Elementary	11 (8.6)	4 (11.8)	1 (3.7)	1 (3.0)	5 (14.7)	
Behavioral pattern						1.10
Activation	72 (56.3)	17 (50.0)	16 (59.3)	18 (54.5)	21 (61.8)	
Inhibition	56 (43.8)	17 (50.0)	11 (40.7)	15 (45.5)	13 (38.2)	
HADS†						
Anxiety	15.3 (3.12)	15.21 (3.31)	15.44 (3.92)	15.30 (2.16)	15.29 (3.16)	0.029
Depression	11.88 (3.96)	12.82 (3.87)$_{a}$	12.74 (3.61)$_{a}$	10.18 (3.96)$_{b}$	11.88 (3.95)$_{a}$	**3.25**
BDI†	15.37 (6.28)	14.35 (5.44)	16.96 (6.26)	15.21(6.93)	15.26 (6.47)	0.88
GAD†	13.79 (4.28)	13.65 (3.94)	13.92 (5.77)	12.48 (4.19)	14.88 (3.63)	1.25
EROS†	20.17 (5.05)	19.88 (5.28)	20.56 (5.02)	20.00 (5.38)	20.32 (4.70)	0.11
AAQ-II†	36.30 (8.37)	36.82 (9.25)	36.81 (8.50)	36.18 (8.00)	35.47 (8.00)	0.19
BADS†						
Activation	18.19 (8.55)	16.79 (6.90)	16.67 (8.44)	20.45 (8.40)	18.59(10.00)	1.40
Avoidance/rumiation	30.18 (8.95)	29.18 (8.43)	32.52 (10.68)	28.88 (8.92)	30.59 (7.91)	1.01
Work/School Impairment	16.57 (7.67)	16.94 (6.80)	17.96 (7.31)	16.06 (7.83)	15.59 (8.72)	0.55
Social Impairment	15.08 (7.76)	14.56 (7.26)	17.19 (7.00)	15.18 (8.17)	13.88 (8.39)	0.96
CFQ†	39.65 (6.90)	39.38 (7.25)	41.48 (6.42)	38.18 (7.01)	39.88 (6.74)	1.17
Cognitive reappraisal	24.05 (8.15)	23.15 (9.42)	23.07 (8.59)	24.55 (6.98)	25.24 (7.62)	0.54
Expressive suppression	17.16 (5.99)	16.32 (6.20)	17.78 (6.05)	17.30 (6.03)	17.38 (5.88)	0.33

Note. † M (*SD*). Subscripts indicate between-group differences. Groups with the same subscript did not differ significantly from each other. Cells in **bold** indicate significant differences between groups; [a] mean (standard deviation); TD: Temporary disability; PD: Permanent disability; HADS: Hospital Anxiety and Depression Scale; BDI: Beck's Depression Inventory; GAD: Generalized Anxiety Disorder scale; EROS: Environmental Reinforcement Schedule; AAQ-II: Acceptance and Action Questionnaire; BADS: Behavioral Activation for Depression Scale; CFQ: Cognitive Failures Questionnaire; ERQ: Emotional Regulation Questionnaire

Table 2. Content of Therapy Sessions

Session	BA	ACT	TD-TCB
1	- Welcome - Establishing of norms for the functioning of the group - Presentation of group members - Expectations		
	- Presentation of MAP - W: Read BA information sheet, self-observation and self-report to formulate functional behavioral analysis, MAP.	- Creative hopelessness -The problem of control - W: Self-report of TSPR.	- Psychoeducation: Thought-emotion relation - W: Read TD-CBT information sheet, Thought-Feel-Action Self-register.
2	-WAR - PAC - W: MAP, self-observation and self-report to formulate functional behavioral analysis.	- WAR. - Creative hopelessness -The problem of control - Acceptance - W: Conscious attention exercise, Self-report of TSPR.	- WAR - Automatic Thoughts and Thinking mistakes - Introducing CR - W: Thinking mistakes information sheet, thought diary (identifying mistakes).
3	- WAR - Identify life objectives - PAC - W: MAP, self-observation and self-report to formulate functional behavioral analysis, life objectives form.	- Conscious attention - WAR - Defusion and SCX - Values - W: Conscious attention exercise, Self-report of TSPR, Values-based goal: setting worksheet.	- WAR - CR - W: Read cognitive reevaluation information sheet, thought diary (3 column technique).
4	- WAR - PAC - Healthy context - W: MAP, self-observation and self-report to formulate functional behavioral analysis, exercise: create a healthy context.	- Conscious attention - WAR - Defusion and SCX - Willingness and Action Plan - W: Conscious attention exercise, Self-report of TSPR and propose committed actions and identify barriers.	- WAR - CR, EDB and Avoidance - Exposition (Behavioral experiments) and SIT - W: Information sheets (about EDB and SIT), Thought-Feel-Action Self-register (3 column and identifying EDB), practice alternative action to EDB with SIT.
5	- WAR	- Conscious attention	- WAR

	- PAC - Avoidance - W: MAP, self-observation and self-report to formulate functional behavioral analysis.	- WAR - Defusion and SCX - Willingness and Action Plan - PACVD - W: Self-report of TSPR, ACVD.	- CR, EDB and Avoidance - Exposure hierarchy - W: Thought-Feel-Action Self-register (3 columns, EDB and alternative action), Program at least 2 expositions.
6	- WAR - PAC - Thinking as a problem - W: MAP, self-observation and self-report to formulate functional behavioral analysis.	- Conscious attention - WAR - Defusion and SCX - Willingness and Action Plan - PACVD - W: Self-report of TSPR, ACVD.	- WAR - Assertiveness training - Problem solving skills - W: Thought-Feel-Action Self-register (3 columns, EDB and alternative action), Program at least 2 expositions.
7	- WAR - PAC - How to choose activities to commit to. - W: MAP, self-observation and self-report to formulate functional behavioral analysis, analyze risky situations and proactive coping strategies, elaborate a guide of things learnt with BA.	- Conscious attention - WAR - Review: Defusion, Acceptance, Willingness - PACVD - W: Self-report of TSPR, ACVD, Plan future committed actions, elaborate a guide of things learnt with ACT.	- WAR - Review: CR, EDB - W: Thought-Feel-Action Self-register (3 columns, EDB and alternative action), Program at least 2 expositions, Plan future actions, elaborate a guide of things learnt with TD-CBT.
8	- WAR - RP - Handing out of therapy manual - Farewell	- Conscious attention - WAR - RP - Handing out of therapy manual - Farewell	- WAR - RP - Handing out of therapy manual - Farewell

Note. W = between-session work; WAR = between-session work and adherence review; MAP = monitoring of activity and pleasure; PAC = program activity/change according to functional analysis; RP = relapse prevention; TSPR: tried solutions to problems and results; SCX = self-as-context (strengthening contact with perspective-taking); PACVD = planning action/change towards a valued direction; ACVD = taking action (change) towards a valued direction; CR: Cognitive reevaluation; EDB: Emotion-driven behaviors; SIT: Self-Instruction Training.

Table 3. Descriptive and inferential statistics in experimental and control treatment groups on dependent variables over time.

	HADS-A *M* (*SD*)	HADS-D *M* (*SD*)	BDI *M* (*SD*)	GAD *M* (*SD*)	EROS *M* (*SD*)	AAQ-II *M* (*SD*)	BADS-A *M* (*SD*)	BADS-SL *M* (*SD*)	BADS-S *M* (*SD*)	BADS-ER *M* (*SD*)	CFQ *M* (*SD*)	ERQ-R *M* (*SD*)	ERQ-S *M* (*SD*)
							Descriptive						
BA													
Baseline	14.35	12.35	13.29	13.65	19.41	35.53	17.35	18.12	13.59	26.59	39.18	21.71	14.41
	(2.85)	(4.69)	(5.18)	(3.94)	(6.28)	(10.52)	(7.41)	(7.30)	(6.44)	(9.10)	(7.97)	(9.68)	(5.23)
EOT	7.88	6.65	7.41	6.35	26.65	26.53	26.24	10.59	4.06	16.71	26.71	27.88	11.47
	(2.32)	(4.94)	(4.65)	(3.32)	(5.96)	(7.04)	(8.28)	(7.27)	(4.16)	(7.78)	(8.73)	(7.27)	(4.58)
3-M FU	8.35	5.76	6.94	7.00	28.29	23.65	26.35	10.76	8.59	17.65	22.88	26.24	11.24
	(3.62)	(3.93)	(7.50)	(4.90)	(6.48)	(10.08)	(6.90)	(7.65)	(8.25)	(10.20)	(10.13)	(8.69)	(4.74)
6-M FU	8.24	4.76	5.47	7.18	28.29	22.29	24.35	11.65	5.47	15.47	24.41	23.82	12.65
	(3.27)	(3.91)	(4.20)	(3.71)	(5.96)	(7.66)	(7.54)	(8.43)	(4.47)	(7.92)	(9.40)	(8.32)	(4.37)
ACT													
Baseline	15.00	13.38	17.38	13.92	19.46	37.69	13.77	18.46	17.92	31.38	42.15	25.00	17.85
	(4.83)	(2.84)	(5.08)	(5.77)	(4.41)	(9.66)	(6.99)	(8.12)	(7.56)	(12.76)	(6.41)	(9.64)	(7.70)
EOT	10.00	7.15	9.08	7.23	27.00	30.00	29.62	7.38	7.69	17.54	29.92	27.00	13.00
	(4.28)	(2.73)	(4.97)	(4.11)	(6.10)	(9.09)	(8.34)	(6.83)	(7.01)	(11.27)	(9.12)	(8.13)	(7.51)
3-M FU	10.46	8.08	11.69	11.00	25.38	28.38	25.54	10.77	9.77	16.46	33.69	28.62	12.23
	(4.48)	(4.19)	(8.16)	(4.71)	(6.60)	(6.56)	(9.65)	(8.67)	(9.29)	(10.46)	(9.48)	(6.78)	(6.25)
6-M FU	10.00	7.31	9.77	8.69	25.85	29.15	23.85	12.46	10.85	19.69	28.77	27.38	16.08
	(4.71)	(4.72)	(8.32)	(5.57)	(7.21)	(12.62)	(8.50)	(7.94)	(9.64)	(14.17)	(12.13)	(9.39)	(8.30)
TD-CBT													
Baseline	14.95	9.76	13.38	12.48	20.86	32.81	20.86	14.71	16.14	25.76	36.38	24.43	17.48
	(2.11)	(4.30)	(6.58)	(4.19)	(5.90)	(7.19)	(8.58)	(6.82)	(9.01)	(7.70)	(6.27)	(6.60)	(6.52)
EOT	9.95	5.43	8.71	8.67	25.48	28.24	26.24	9.71	9.90	18.86	32.38	29.81	14.19
	(4.56)	(3.88)	(7.02)	(5.29)	(7.40)	(8.00)	(9.12)	(7.38)	(8.11)	(8.07)	(6.46)	(4.69)	(5.84)
3-M FU	9.10	6.00	7.67	7.81	25.57	24.81	26.48	9.81	8.43	19.76	28.67	28.71	13.95
	(4.04)	(4.00)	(6.34)	(4.29)	(7.68)	(7.91)	(8.41)	(6.02)	(6.82)	(9.76)	(8.35)	(4.61)	(6.68)
6-M FU	9.19	6.29	8.86	7.48	24.90	24.90	26.38	8.67	9.29	19.81	26.81	28.33	14.24

	(4.71)	(3.96)	(8.16)	(4.94)	(7.77)	(9.05)	(8.79)	(7.16)	(8.62)	(9.90)	(9.05)	(5.33)	(6.71)
WL													
Baseline	15.58	12.19	15.77	14.88	20.50	35.77	17.23	16.62	14.35	29.77	41.42	25.46	17.46
	(3.38)	(3.77)	(6.22)	(3.63)	(4.33)	(6.84)	(9.90)	(7.98)	(7.88)	(7.71)	(4.23)	(7.97)	(6.24)
EOT	12.69	9.31	13.77	12.50	21.58	34.96	18.27	15.69	11.88	27.00	38.27	24.04	16.19
	(3.76)	(4.10)	(6.60)	(4.68)	(5.62)	(6.36)	(10.64)	(8.58)	(7.63)	(9.35)	(8.52)	(8.28)	(6.69)
3-M FU	11.58	9.08	12.88	11.69	23.12	30.88	20.12	14.35	13.77	26.54	36.04	26.58	16.15
	(4.46)	(4.70)	(7.38)	(4.89)	(6.63)	(9.93)	(10.48)	(8.65)	(9.95)	(11.17)	(9.81)	(6.83)	(6.88)
6-M FU	11.69	8.15	10.50	11.19	22.88	30.38	19.92	12.04	12.00	26.96	34.54	25.27	14.77
	(4.05)	(4.38)	(6.61)	(5.35)	(5.41)	(10.50)	(10.55)	(8.14)	(8.64)	(10.79)	(11.10)	(7.24)	(6.17)
						Inferential*							
GLM (T)	$_{a}$**71.01**[1]	$_{b}$**63.78**[2]	$_{c}$**31.27**[3]	$_{d}$**34.59**[4]	$_{c}$**39.24**[5]	$_{c}$**33.78**[6]	$_{c}$**22.17**[7]	$_{c}$**24.86**[8]	$_{c}$**23.88**[9]	$_{e}$**28.48**[10]	$_{f}$**44.86**[11]	$_{g}$**5.41**[12]	$_{h}$**13.97**[13]
GLM (I)	$_{i}$1.44[14]	$_{j}$**2.48**[15]	$_{k}$1.80[12]	$_{l}$**2.08**[16]	$_{k}$**3.49**[17]	$_{k}$1.74[18]	$_{k}$**2.76**[19]	$_{k}$**2.85**[20]	$_{k}$**2.45**[21]	$_{m}$**2.55**[22]	$_{n}$**3.22**[23]	$_{o}$1.69[24]	$_{p}$1.74[18]
MLM (T)	$_{c}$**109.45**†	$_{c}$**88.37**†	$_{c}$**46.55**†	$_{c}$**55.84**††	$_{c}$**52.14**†	$_{c}$**51.72**†	$_{c}$**24.42**†	$_{c}$**32.65**†	$_{c}$**31.63**†	$_{c}$**48.53**†	$_{c}$**46.18**†††	$_{c}$**4.93**†††	$_{c}$**13.50**†
MLM (G)	$_{c}$**2.96**†	$_{c}$2.33†	$_{c}$2.58†	$_{c}$**3.88**††	$_{c}$**3.55**†	$_{c}$1.76†	$_{c}$**2.82**†	$_{c}$0.72†	$_{c}$2.51†	$_{c}$**4.63**†	$_{c}$**5.17**†††	$_{c}$0.85†††	$_{c}$0.51†
MLM (I)	$_{k}$**2.19**†	$_{k}$**3.26**†	$_{k}$**2.22**†	$_{k}$**3.49**††	$_{k}$**3.59**†	$_{k}$**2.32**†	$_{k}$**3.04**†	$_{k}$**2.67**†	$_{k}$**3.24**†	$_{k}$**3.61**†	$_{k}$**3.86**†††	$_{k}$1.37†††	$_{k}$1.37†

Note. HADS: Hospital Anxiety and Depression Scale [HADS-A: anxiety; HADS-D: Depression]; BDI: Beck's Depression Inventory; GAD: Generalized Anxiety Disorder scale; EROS: Environmental Reinforcement Schedule; AAQ-II: Acceptance and Action Questionnaire; BADS: Behavioral Activation for Depression Scale [BADS-A: Activation; BADS-SL: Work/School impairment; BADS-S: Social impairment; BADS-ER: Avoidance/rumination]; CFQ: Cognitive Failures Questionnaire; ERQ: Emotional Regulation Questionnaire [ERQ-R: Cognitive reappraisal; ERQ-S: Expressive suppression]

BA: Behavioral activation; ACT: Acceptance and Commitment Therapy; CBT: Cognitive-Behavioral Therapy; WL: Waiting list; EOT: End-of-treatment; 3-M FU: 3-month follow-up; 6-M FU: 6-month follow-up

GLM: Generalized linear model; MLM: Mixed linear model; T: Time; G: treatment group; I: TxG interaction

* Subscripts denote degrees of freedom; superscripts denote effect sizes. *F* statistics in **bold** denote significant results at $p < .005$; *F* statistics in **bold** and underscored denote significant results at $p < .001$

$_{a}$ 2.90 $_{b}$ 2.85 $_{c}$ 3 $_{d}$ 2.83 $_{e}$ 2.93 $_{f}$ 2.86 $_{g}$ 2.67 $_{h}$ 2.92 $_{i}$ 8.70 $_{j}$ 8.56 $_{k}$ 9 $_{l}$ 8.49 $_{m}$ 8.80 $_{n}$ 8.57 $_{o}$ 8 $_{p}$ 8.76

[1].439 [2].466 [3].300 [4].322 [5].350 [6].316 [7].233 [8].254 [9].246 [10].281 [11].381 [12].069 [13].161 [14].056 [15].093 [16].079 [17].126 [18].067 [19].102 [20].105 [21].092 [22].095 [23].117 [24].062

† Compound symmetry as the best-fit covariance structure in the MLM; †† First-order autoregressive ††† Heterogeneous first-order auto-regressive

Table S1. Differences in clinical variables between treatment arms across assessments

Variable Arm	Assigned study group (I)	Assigned study group (J)	Mean differences (I-J)	Standard error	95% Confidence interval
HADS-A					
BA	Baseline	End-of-treatment	6.760**	0.699	4.904, 8.616
	Baseline	3-M follow-up	5.968**	0.722	4.052, 7.884
	Baseline	6-M follow-up	6.465**	0.733	4.517, 8.412
ACT	Baseline	End-of-treatment	5.046**	0.754	3.045, 7.048
	Baseline	3-M follow-up	4.941**	0.767	2.904, 6.798
	Baseline	6-M follow-up	5.732**	0.781	3.659, 7.804
TD-CBT	Baseline	End-of-treatment	5.012**	0.649	3.288, 6.736
	Baseline	3-M follow-up	5.732**	0.666	3.964, 6.736
	Baseline	6-M follow-up	5.466**	0.674	3.675, 7.256
WL	Baseline	End-of-treatment	2.756**	0.676	0.960, 4.552
	Baseline	3-M follow-up	3.871**	0.676	2.075, 5.667
	Baseline	6-M follow-up	3.356**	0.676	1.960, 5.552
HADS-D					
BA	Baseline	End-of-treatment	6.012**	0.742	4.041, 7.984
	Baseline	3-M follow-up	6.365**	0.766	4.330, 8.400
	Baseline	6-M follow-up	7.745**	0.779	5.677, 9.813
ACT	Baseline	End-of-treatment	6.231**	1.031	4.176, 8.286
	Baseline	3-M follow-up	5.308**	1.077	3.161, 7.455
	Baseline	6-M follow-up	6.077**	1.236	3.614, 8.540
TD-CBT	Baseline	End-of-treatment	4.333**	0.811	2.716, 5.950
	Baseline	3-M follow-up	3.762**	0.848	2.073, 5.451
	Baseline	6-M follow-up	3.476*	0.972	1.538, 5.414
WL	Baseline	End-of-treatment	2.885**	0.729	1.431, 4.338
	Baseline	3-M follow-up	3.115**	0.762	1.597, 4.634
	Baseline	6-M follow-up	4.038**	0.874	2.297, 5.780
BDI					
BA	Baseline	End-of-treatment	6.970**	1.220	3.730, 10.211
	Baseline	3-M follow-up	6.454**	1.260	2.108, 9.800
	Baseline	6-M follow-up	8.454**	1.281	5.054, 11.854
ACT	Baseline	End-of-treatment	7.448**	1.315	3.956, 10.939
	Baseline	3-M follow-up	6.558*	1.338	3.005, 11.943
	Baseline	6-M follow-up	8.327**	1.362	4.711, 11.943
TD-CBT	Baseline	End-of-treatment	5.178**	1.131	2.174, 8.182
	Baseline	3-M follow-up	5.536**	1.160	2.455, 8.617
	Baseline	6-M follow-up	4.596*	1.175	1.477, 7.716
WL	Baseline	6-M follow-up	5.063**	1.180	1.929, 8.196
	End-of-treatment	6-M follow-up	3.269*	1.209	0.056, 6.482
GAD					
BA	Baseline	End-of-treatment	7.254**	0.878	4.922, 9.585
	Baseline	3-M follow-up	6.328**	1.087	3.444, 9.212
	Baseline	6-M follow-up	7.220**	1.185	4.079, 10.361
ACT	Baseline	End-of-treatment	7.124**	0.947	4.608, 9.639
	Baseline	3-M follow-up	4.693**	1.166	1.601, 7.786
	Baseline	6-M follow-up	6.759*	1.273	3.383, 10.135
TD-CBT	Baseline	End-of-treatment	4.574*	0.86	2.405, 6.742
	Baseline	3-M follow-up	5.303**	1.018	2.604, 8.002
	Baseline	6-M follow-up	5.346**	1.112	2.398, 8.294
WL	Baseline	6-M follow-up	2.958*	1.110	0.014, 5.902

EROS					
BA	Baseline	End-of-treatment	-7.23**	1.022	-9.977, -4.549
	Baseline	3-M follow-up	-7.747**	1.056	-10.550, -4.944
	Baseline	6-M follow-up	-8.797**	1.073	-11.646, -5.949
ACT	Baseline	End-of-treatment	-6.482**	1.100	-9.405, -3.560
	Baseline	3-M follow-up	-5.338**	1.120	-8.313, -2.363
	Baseline	6-M follow-up	-5.887**	1.140	-8.914, -2.860
TD-CBT	Baseline	End-of-treatment	-5.229**	0.946	-7.741, -2.717
	Baseline	3-M follow-up	-4.707**	0.970	-7.284, -2.130
	Baseline	6-M follow-up	-4.429*	0.983	-7.039, -1.820
WL	Baseline	3-M follow-up	-2.682*	0.988	-5.305, -0.059
AAQ-II					
BA	Baseline	End-of-treatment	9.221**	1.635	4.880, 13.563
	Baseline	3-M follow-up	10.557**	1.688	6.674, 15.039
	Baseline	6-M follow-up	13.572**	1.716	9.016, 18.127
ACT	Baseline	End-of-treatment	6.942*	1.762	2.262, 11.622
	Baseline	3-M follow-up	9.729**	1.793	4.966, 14.491
	Baseline	6-M follow-up	9.195*	1.825	4.348, 14.041
TD-CBT	Baseline	End-of-treatment	6.441*	1.516	2.414, 10.467
	Baseline	3-M follow-up	8.657**	1.555	4.526, 12.788
	Baseline	6-M follow-up	9.082**	1.575	4.899, 13.265
WL	Baseline	3-M follow-up	4.757*	1.581	0.558, 8.956
	Baseline	6-M follow-up	5.257*	1.581	1.058, 9.546
BADS-A					
BA	Baseline	End-of-treatment	-8.663**	1.801	-13.446, -3.881
	Baseline	3-M follow-up	-8.667**	1.859	-13.602, -3.732
	Baseline	6-M follow-up	-6.814*	1.889	-11.829, -1.798
ACT	Baseline	End-of-treatment	-12.611**	1.946	-17.779, -7.444
	Baseline	3-M follow-up	-10.150**	1.980	-15.407, -4.894
	Baseline	6-M follow-up	-7.788*	2.014	-13.136, -2.439
TD-CBT	Baseline	End-of-treatment	-4.739*	1.680	-9.201, -0.278
	Baseline	3-M follow-up	-4.694*	1.721	-9.266, -0.122
	Baseline	6-M follow-up	-5.108*	1.743	-9.737, -0.478
BADS-SL					
BA	Baseline	End-of-treatment	7.529**	1.690	4.162, 10.897
	Baseline	3-M follow-up	7.353**	1.691	3.982, 10.724
	Baseline	6-M follow-up	6.471*	1.839	2.805, 10.136
ACT	Baseline	End-of-treatment	11.077**	1.932	7.226, 14.928
	Baseline	3-M follow-up	7.692**	1.934	3.838, 11.547
	Baseline	6-M follow-up	6.000*	2.103	1.808, 10.192
TD-CBT	Baseline	End-of-treatment	5.000*	1.520	1.970, 8.030
	Baseline	3-M follow-up	4.905*	1.522	1.872, 7.937
	Baseline	6-M follow-up	6.048**	1.655	2.750, 9.345
WL	Baseline	6-M follow-up	4.146*	1.352	0.557, 7.736
BADS-S					
BA	Baseline	End-of-treatment	9.945**	1.523	5.899, 13.990
	Baseline	3-M follow-up	6.229*	1.573	2.053, 10.405
	Baseline	6-M follow-up	8.517**	1.598	4.273, 12.761
ACT	Baseline	End-of-treatment	10.002**	1.666	5.579, 14.425
	Baseline	3-M follow-up	6.612*	1.695	2.111, 11.113
	Baseline	6-M follow-up	7.406**	1.724	2.827, 11.986
TD-CBT	Baseline	End-of-treatment	4.781*	1.418	1.015, 8.547
	Baseline	3-M follow-up	6.791**	1.453	2.931, 10.652
	Baseline	6-M follow-up	5.323*	1.472	1.414, 9.232
BADS-ER					

BA	Baseline	End-of-treatment	11.349**	1.813	6.534, 16.164
	Baseline	3-M follow-up	9.243*	1.872	4.271, 14.214
	Baseline	6-M follow-up	12.221**	1.903	7.168, 17.273
ACT	Baseline	End-of-treatment	13.832**	1.955	8.640, 19.023
	Baseline	3-M follow-up	14.699**	1.989	9.416, 19.980
	Baseline	6-M follow-up	13.666**	2.024	8.290, 19.042
TD-CBT	Baseline	End-of-treatment	7.808**	1.683	3.338, 12.278
	Baseline	3-M follow-up	6.714*	1.726	2.130, 11.298
	Baseline	6-M follow-up	6.736*	1.748	2.094, 11.377
CFQ					
BA	Baseline	End-of-treatment	11.90**	1.463	7.985, 15.794
	Baseline	3-M follow-up	13.463**	2.035	8.035, 18.891
	Baseline	6-M follow-up	14.927**	2.386	8.548, 21.306
ACT	Baseline	End-of-treatment	10.226**	1.568	6.041, 14.411
	Baseline	3-M follow-up	8.795*	2.159	3.041, 14.548
	Baseline	6-M follow-up	12.527**	2.532	5.763, 19.292
TD-CBT	Baseline	End-of-treatment	4.060*	1.340	0.485, 7.635
	Baseline	3-M follow-up	7.903**	1.864	2.937, 12.869
	Baseline	6-M follow-up	9.602**	2.185	3.768, 15.436
ERQ-R					
BA	Baseline	End-of-treatment	-4.557*	1.694	-9.078, -0.037
TD-CBT	Baseline	End-of-treatment	-4.487*	1.614	-8.796, -0.178
ERQ-S					
BA	Baseline	End-of-treatment	3.050*	1.014	0.357, 5.743
ACT	Baseline	End-of-treatment	3.868**	1.091	0.970, 6.767
	Baseline	3-M follow-up	4.486**	1.111	1.536, 7.437
TD-CBT	Baseline	End-of-treatment	2.748*	0.937	0.258, 5.237
	Baseline	3-M follow-up	2.632*	0.962	0.078, 5.187

Note. BA: Behavioral Activation; ACT: Acceptance and Commitment Therapy; TD-CBT: Transdiagnostic Cognitive-Behavioral Therapy; WL: Waiting List
HADS: Hospital Anxiety and Depression Scale [HADS-A: anxiety; HADS-D: Depression]; BDI: Beck's Depression Inventory; GAD: Generalized Anxiety Disorder scale; EROS: Environmental Reinforcement Schedule; AAQ-II: Acceptance and Action Questionnaire; BADS: Behavioral Activation for Depression Scale [BADS-A: Activation; BADS-SL: Work/School impairment; BADS-S: Social impairment; BADS-ER: Avoidance/rumination]; CFQ: Cognitive Failures Questionnaire; ERQ: Emotional Regulation Questionnaire [ERQ-R: Cognitive reappraisal; ERQ-S: Expressive suppression]
* $p < .05$ ** $p < .001$