RESEARCH ARTICLE

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Effectiveness of mindfulness-based stress reduction and attachment-based compassion therapy for the treatment of depressive, anxious, and adjustment disorders in mental health settings: A randomized controlled trial

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Abstract

Objectives: To study the effectiveness of attachment-based compassion therapy (ABCT) for reducing affective distress in a sample of outpatients with depressive, anxiety, or adjustment disorders, and to explore its mechanisms of action.

Methods: This randomized controlled trial involved the assessment time points of pretreatment, posttreatment and 6-month follow-up. A total of 90 patients from three mental health units in Castellón, Spain, were recruited and randomly assigned to "ABCT + treatment as usual (TAU)," "Mindfulness-based stress reduction (MBSR) + TAU" or "TAU" alone. Affective distress, as measured by the "Depression, Anxiety and Stress Scales" (DASS-21) was the main outcome; self-compassion and mindfulness were also assessed. Multilevel mixed-effects models were used to estimate the effectiveness of the program, and path analyses were conducted to study the potential mechanistic role of mindfulness and self-compassion.

Results: ABCT was not superior to MBSR in any outcome or at any assessment point. ABCT was superior to TAU alone both posttreatment ($B = -13.20$; 95% confidence interval [CI]: -19.57, -6.84) and at 6-month follow-up ($B = -7.20$; 95% CI: -13.63, -0.76) for reducing DASS-21, and MBSR was superior to TAU alone both posttreatment ($B = -11.51$; 95% CI: -17.97, -5.05) and at 6-month follow-up ($B = -8.59$; 95% CI: -15.09, -2.10), with large effects ($d \geq 0.90$). Changes produced by ABCT in DASS-21 were mediated by self-compassion, whereas changes produced by MBSR were mediated by both mindfulness and self-compassion.

Conclusion: ABCT is effective for reducing affective distress in patients with anxiety, depressive and adjustment disorders, although its effect is not superior to that offered by MBSR. Self-compassion seems to be a significant mediator of the effects of ABCT.

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1 | INTRODUCTION

Depressive, anxiety and adjustment disorders are the most prevalent conditions among mental health outpatients, with prevalence rates in the general population ranging between 3.6% and 4.4% (Lefstad, 2017; Stevens et al., 2016). These mental health problems often have a negative impact on the individual's functionality and health-related quality of life (Bandelow & Michaelis, 2015; Richards, 2011), and in some cases can induce the development of severe psychiatric conditions, such as suicidality (Bisson & Sakhuja, 2006; Casey et al., 2015). It is, therefore, essential that effective interventions to treat these conditions should become widely available (Harris et al., 2015).

Different psychotherapies have proved to be efficacious for treating these disorders. Over the last decades, "third wave" psychotherapies have been studied with increasing interest due to the positive results that they have achieved when treating different health-related conditions (Demarzo et al., 2015; Gotink et al., 2015; Khoury et al., 2013). "Third wave" psychotherapies constitute an innovation within classic cognitive-behavioral therapy because they do not focus on symptom relief as the main outcome but try to promote well-being through the practice of mindfulness, compassion, acceptance and spirituality (Jahoda et al., 2017).

Mindfulness-based stress reduction (MBSR) and attachment-based compassion therapy (ABCT) are two examples of "third wave" psychotherapies. The first endeavors to train the mind to adopt a non-judgemental, present-focused awareness by cultivating full attention through different meditation exercises (Kabat-Zinn, 1991). Its efficacy for treating anxiety and depression has been reported in different studies, and "third wave" variables such as trait mindfulness and self-compassion have been identified as potential mediators of MBSR (Germer & Neff, 2013; Gu et al., 2015). However, its effects are low when compared with other active treatments (Khoury et al., 2013; Sundquist et al., 2015), and its long-term duration has also been questioned (Pérez-Aranda et al., 2019; Wang et al., 2018; Williams & Mercer, 2015).

ABCT is a compassion-based intervention that seeks to regulate attention processes to replace self-critical tendencies with self-compassionate attitudes via the development of a secure attachment figure (García-Campayo & Demarzo, 2015; Navarro-Gil et al., 2020). The individual's attachment style is an aspect that has been considered a core part of the therapeutic process but had not been given a central role in previous compassion-based therapies. ABCT is framed within attachment theory, but it also includes elements from other compassion-based interventions, such as compassion-focused therapy (Gilbert, 2015), and incorporates techniques from other psychotherapies, such as mindfulness-based programs, acceptance and commitment therapy, and dialectical behavior therapy (García-Campayo & Demarzo, 2015). Compassion refers to an orientation of

the mind characterized by sensitivity towards suffering and a commitment to relieve it by recognizing its universality and the ability to meet that pain with equanimity (Feldman & Kuyken, 2011; Macbeth & Gumley, 2012). ABCT has proved efficacious at increasing self-compassion in healthy individuals (Navarro-Gil et al., 2020) and improving different clinical outcomes in fibromyalgia patients (Montero-Marín et al., 2018), with the possible mediating role of mindfulness and self-compassion (Montero-Marin et al., 2020). It has been observed that the improvements achieved by ABCT in different outcomes were maintained in follow-up assessments, offering promising evidence as regards its long-term effectiveness. Nevertheless, ABCT needs to be studied in more populations and compared to well-established interventions to fully understand its applicability and effectiveness, as well as the potential pathways of change involved.

This study aimed to explore the effectiveness of ABCT added to treatment-as-usual (TAU) in comparison with MBSR + TAU in a sample of patients from mental health settings suffering from depressive, anxiety or adjustment disorders. This study also aimed to analyse the possible mediating role of mindfulness and self-compassion in improvements in the intervention groups compared with TAU. The lack of previous background on the direct comparison between the effectiveness of ABCT and MBSR hinders the establishment of new hypotheses. Nonetheless, the identification of self-compassion as a key mechanism of the effectiveness of "third wave" psychotherapies (Germer & Neff, 2013; Gu et al., 2015) suggests that a compassion-based intervention, such as ABCT, might be more effective than a conventional mindfulness-based program, such as MBSR, and previous evidence (Montero-Marín et al., 2018; Navarro-Gil et al., 2020) suggests that its effects may be better maintained in the long term.

2 | METHODS

2.1 | Design

This study is a multicentre, randomized controlled trial (RCT) comprising three parallel arms ("ABCT + TAU," "MBSR + TAU," and "TAU alone"), with pretreatment, posttreatment and 6-month follow-up measurements. The RCT was conducted following the guidelines of the Consolidated Standards of Reporting Trials (Moher et al., 2010).

2.2 | Recruitment and inclusion criteria

Study participants were recruited from three mental health units in Castellón, Spain. The inclusion criteria were: (1) age between 18 and 75 years; (2) depressive and/or anxious disorder, or adjustment disorder

with depressive and/or anxious symptomatology (based on DSM-5 criteria); (3) mild or moderate severity according to clinical criteria; (4) proficiency in Spanish; and (5) provision of written informed consent. The exclusion criteria were: (1) having done any type of meditative/contemplative practice in the previous year; (2) diagnosis of any disease that could affect the central nervous system; (3) other psychiatric diagnoses or acute psychiatric illnesses; (4) any medical condition/infectious/degenerative disease that could affect mood; and (5) presence of delusional ideas/hallucinations. Diagnoses were conducted by psychiatrists/psychologists using the Structured Clinical Interview for DSM-5 (First et al., 2015).

This is the first study to compare the effectiveness of ABCT and MBSR. Therefore, we performed an exploration based on our hypothesis that ABCT + TAU would be more effective than MBSR + TAU for treating depressive, anxiety or adjustment disorders. The sample size was calculated assuming a large effect of ABCT + TAU versus TAU alone and a small effect of MBSR + TAU versus TAU alone in the primary outcome, and with an equal 1:1:1 allocation rate and $d = 0.80$ when comparing ABCT + TAU versus MBSR + TAU, and was estimated at 75 patients (25 per group). Assuming an attrition rate of 15%–20% at follow-up, the total sample size required was established at 90 patients (30 per group).

2.3 | Procedures and ethics

Recruitment was conducted in one wave between September 2018 and February 2019. Potential participants were referred to the research unit to be offered information about the study and were provided with the confidentiality/informed consent documents if they agreed to participate. A simple computer-generated random sequence was remotely created by an independent researcher after baseline evaluation. The allocation procedure was conducted by the same researcher and the allocation sequence concealed before patients were allocated to the intervention. Written informed consent was obtained from all participants before randomization. Further details on the allocation procedure can be found in the study protocol (Montero-Marin et al., 2019). This study was approved by the Ethics Committee of the General University Hospital of Castellón (7/2017). All procedures performed in this study were in accordance with the Declaration of Helsinki of the World Medical Association and the Declaration of Madrid of the World Psychiatric Association. Participant confidentiality was protected by EU laws governing privacy and data protection. This trial was performed in compliance with the protocol (NCT03425487) and Good Clinical Practice guidelines (Vijayananthan & Nawawi, 2008).

2.4 | Interventions

Both ABCT and MBSR included daily practice sessions with a duration of about 30 min. After each session, audio files were sent to each patient's email along with booklets providing a description of the concepts and exercises, and guidelines on how to perform the practices.

2.4.1 | Attachment-based compassion therapy

ABCT consisted of one weekly 2-h group session over the course of 8 weeks—ranging from 10 to 15 participants—conducted by a clinical psychologist certified in ABCT and trained to ensure program integrity (García-Campayo et al., 2016). The ABCT protocol includes teachings, daily exercises, meditation, visualizations, and practices to augment patients' ability to be considerate and kind towards themselves and their own experience of suffering and towards others' experience of suffering. Home exercises were commented on in each session to resolve doubts and encourage adherence to the program. A summary of the session structure can be found elsewhere (Montero-Marin et al., 2019).

2.4.2 | Mindfulness-based stress reduction

MBSR consisted of one weekly 2-h group session over the course of 8 weeks—ranging from 10 to 15 participants—conducted by a clinical psychologist certified in MBSR therapy and trained to ensure program integrity (Blacker et al., 2017; Kabat-Zinn, 1991). MBSR presents an educational orientation that includes teachings and formal/informal meditation, as well as individual and group dialogs and inquiries about perceptions and habits. The full-day retreat of meditation included in the original protocol was ruled out to avoid schedule incompatibility (Samuelson et al., 2007; Segal et al., 2002). Home exercises were commented on in each session to resolve doubts and encourage adherence. A summary of the session structure can be found elsewhere (Montero-Marin et al., 2019).

2.4.3 | Treatment as usual

TAU was delivered in current daily practice by psychiatrists/clinical psychologists of the national mental health service in Spain. TAU can refer to psychiatric treatment (which typically includes prescription and monitoring of antidepressant and/or anxiolytic medication), psychological treatment (including case management, CBT techniques, empathic listening, and/or supportive counseling), or a combination of both.

2.5 | Measures

The following socio-demographic data were collected: age, gender, marital status, number of children, place of residence, education, employment and income.

The main outcome was general affective distress (Clark & Watson, 1991). This was assessed through the Depression Anxiety Stress Scales-21 (DASS-21; Lovibond & Lovibond, 1995). The DASS-21 is a self-report questionnaire composed of three subscales (depression, anxiety, and stress), each consisting of seven items measured in a 4-point Likert-type scale. It provides with a one-dimensional measure (main outcome) which ranges from 0 to 63. The DASS-21 has been validated in the

Spanish population, showing strong psychometric properties (Daza et al., 2002).

The Five Facet Mindfulness Questionnaire (FFMQ; Baer et al., 2006) was used to evaluate the possible mediating role of mindfulness. The FFMQ is a 39-item self-report that assesses observing, describing, acting with awareness, non-judging of and nonreactivity to inner experience. Each item is answered on a 5-point Likert-type scale. A total score (range: 39–195) was used. The Spanish version of the FFMQ has shown good psychometric properties (Cebolla et al., 2012).

The Self-Compassion Scale (SCS; Neff, 2003) was used to evaluate the potential mediating role of self-compassion. The SCS is a 26-item questionnaire that assesses common humanity, mindfulness and self-kindness. The SCS uses a 5-point Likert-type scale. A total self-compassion score (range: 26–130) was used (Neff et al., 2019). The SCS Spanish version is a reliable instrument (Garcia-Campayo et al., 2014).

2.6 | Data analyses

Socio-demographic and clinical data were described at baseline by means of frequencies (percentages) or means (SD), depending on the distribution of each variable. The χ^2 or analysis of variance tests were conducted to assess between-group differences.

Primary analysis consisted of a comparison between the ABCT + TAU versus MBSR + TAU arms at posttest as the primary endpoint, considering the DASS-21 total score as a continuous variable. An intention-to-treat analysis was performed using linear mixed-effects regression. Subjects were introduced as random effects by means of the restricted maximum-likelihood method (Egbewale et al., 2014). Raw estimations of slope coefficients (and their 95% confidence interval [CI]) were calculated. Cohen's d, as an effect size measure of between-group differences, was calculated using marginal means (Morris, 2008). Secondary analysis evaluated the maintenance of the improvements achieved at 6-month follow-up. We also explored results of the subscales of the DASS-21 (depression, anxiety, and stress), and the FFMQ and SCS, using the same analytical strategy.

Sensitivity analyses of the primary outcome were performed to assess perprotocol effects and those of missing data, which were replaced by multiple imputations of 20 datasets based on chained equations. These included all the variables introduced in the analyses and those baseline variables that were significantly related to non-response, as well as sociodemographic data. Multilevel models were also used to assess transdiagnostic effectiveness by including the diagnosis group as a random effect.

The potential mediating role of mindfulness and self-compassion was explored on the DASS-21 and sub-scales. For this, (1) prefollow-up differential scores for primary outcome and subscales were considered dependent variables; (2) prepost differential scores of mindfulness or self-compassion were included as simple process variables; (3) the group condition (ABCT + TAU vs. TAU alone, or MBSR + TAU vs. TAU alone) was the independent variable. Analyses were conducted using maximum likelihood-based path analyses for continuous

dependent variables. Regression coefficients of bootstrapped indirect effects were estimated, as well as their 95% CIs based on 10,000 bootstrap samples, considering a significant mediating effect when the 95% CI did not include zero (Lockhart et al., 2011). The percentage of mediating effects regarding the total effects as well as the percentage of variance in the outcome that was explained by the mediating model (by means of determination coefficients) were calculated.

The alpha level was set at .05. No corrections for multiple comparisons were made because only one contrast was made for the primary analysis, and the secondary analyses were explorative (Feise, 2002). JMM conducted the blinded statistical analyses.

3 | RESULTS

3.1 | Flow and compliance

After excluding 14 participants from the initial 104, the remaining 90 individuals were randomized into the three study arms (see Figure 1). The mean number of sessions attended in both interventions was similar (ABCT + TAU: $M = 5.6$, $SD = 2.4$; MBSR + TAU: $M = 5.4$, $SD = 2.8$; $t = 0.76$, $p = .580$). Posttreatment retention rates were 76.7% in ABCT, 70% in MBSR and 86.7% in TAU alone ($\chi^2 = 5.42$; $p = .067$), and they were 76.7%, 70%, and 83.3%, respectively ($\chi^2 = 2.61$; $p = .271$), at follow-up. The only variable that significantly predicted dropout was employment status (Table S1).

3.2 | Baseline characteristics

The baseline characteristics of participants are shown in Table 1. No significant differences were found for socio-demographic factors between the study arms. With regard to clinical data, the DASS-21 indicated moderate levels of affective distress in the three branches, with no significant differences. All the participants were undergoing psychiatric and/or psychological treatment. Antidepressants and anxiolytics were the most common medications. No significant differences were found in this regard between the study groups (all p values > .05). Moderate-high levels of mindfulness and self-compassion were observed in the three study arms, with no significant differences.

3.3 | Effects on affective distress

Table 2 shows descriptive and between-group analyses for the DASS-21 (raw data are given in Table S2). Compared to MBSR + TAU, ABCT + TAU was not superior at any assessment point. ABCT + TAU achieved a significant greater reduction in affective distress than TAU alone posttreatment and at follow-up. MBSR + TAU achieved a greater reduction in affective distress compared to TAU alone at posttreatment and at follow-up. The analyses of the DASS-21 subscales showed similar results: ABCT + TAU obtained significant reductions for all the subscales posttreatment compared to TAU alone, but in the follow-up two effects were

FIGURE 1 Study flowchart
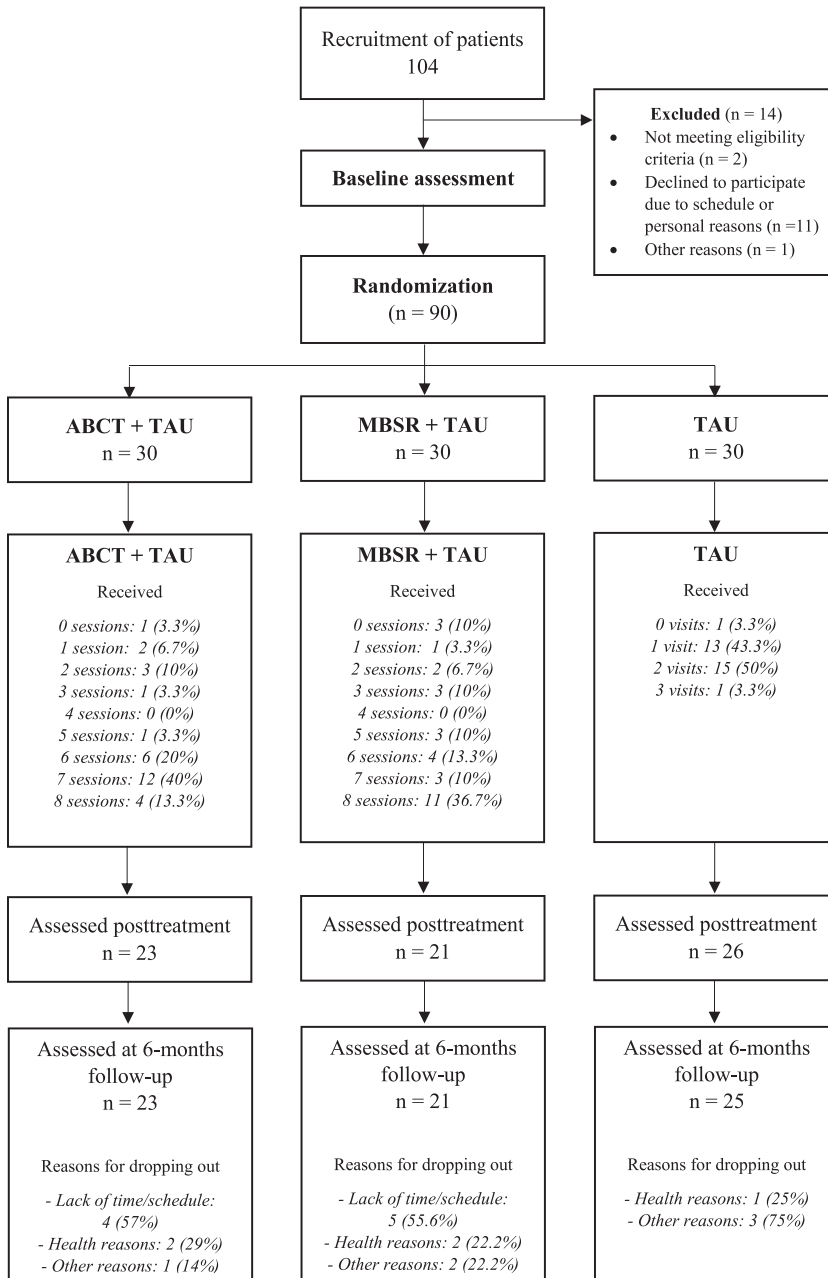
lost: "Anxiety" and "Stress." MBSR + TAU was superior to TAU alone in the three subscales, both posttreatment and at follow-up.

The perprotocol analysis indicated that ABCT + TAU was superior to TAU alone posttreatment in the primary outcome ($B = 14.01$; $p < .001$; 95% CI = 7.31, 20.70), although some effects had been lost by the follow-up assessment ($B = 8.47$; $p = .056$; 95% CI = −0.24, 17.18). Compared to MBSR + TAU, no significant differences were appreciated in any case (all p values > .05). A sensitivity analysis conducted after imputing missing data (Table S3) indicated that ABCT + TAU was superior both to TAU alone and MBSR + TAU, with effect sizes ranging from small to medium in the latter case. The models computed to assess the transdiagnostic effectiveness of MBSR + TAU and ABCT + TAU indicated no significant differences between the two intervention arms, while both were individually superior to TAU alone (Table S4). A post hoc sensitivity analysis for the primary outcome after controlling for age, diagnoses and the

baseline score of DASS-21 showed that ABCT + TAU produced significant effects compared to TAU alone both posttreatment ($B = 13.54$; $p < .001$; 95% CI = 7.45–19.62) and after 6 months ($B = 7.29$; $p = .032$; 95% CI = 0.65–13.95). Compared to MBSR + TAU, no significant differences were appreciated in any case (all p values > .05).

3.4 | Effects on mindfulness and self-compassion

Table 2 shows the descriptive and between-group analyses for the process variables (raw data are given in Table S2). Compared to TAU, patients receiving ABCT + TAU achieved a significant increase posttreatment in the FFMQ and SCS-12. Similar effects were found at 6-month follow-up. MBSR + TAU was superior to TAU alone for increasing FFMQ and SCS-12 both posttreatment and at follow-up.

TABLE 1 Baseline characteristics of patients by treatment group

	ABCT + TAU (n = 30)	MBSR + TAU (n = 30)	TAU (n = 30)	p
Sociodemographic data				
Age, mean (SD)	46.83 (10.84)	44.30 (12.50)	47.90 (10.99)	.462
Gender (n females, %)	27 (90.0)	25 (83.3)	26 (86.7)	.925
Marital status, n (%)				.770
Single	6 (20.0)	3 (10.0)	4 (13.3)	
Married/relationship	20 (66.7)	22 (73.3)	19 (63.4)	
Separated/divorced	3 (10.0)	5 (16.7)	6 (20.0)	
Widowed	1 (3.3)	0 (0.0)	1 (3.3)	
Place of residence, n (%)				.833
Own home	22 (73.3)	22 (73.3)	20 (66.7)	
Relative's home	3 (10.0)	4 (13.3)	5 (16.7)	
Neighbor/friend's home	2 (6.7)	0 (0.0)	1 (3.3)	
Other	3 (10.0)	4 (13.3)	4 (13.3)	
Education, n (%)				.407
No studies	2 (6.7)	1 (3.3)	0 (0.0)	
Primary studies	11 (36.7)	8 (26.7)	15 (50.0)	
Secondary studies	12 (40.0)	13 (43.3)	8 (26.7)	
University	5 (16.7)	8 (26.7)	7 (23.3)	
Employment, n (%)				.253
Unemployed	3 (10.0)	2 (6.7)	4 (13.4)	
Employed	11 (36.7)	14 (46.5)	10 (33.3)	
Home duties	8 (26.6)	2 (6.7)	6 (20.0)	
Student	2 (6.7)	2 (6.7)	0 (0.0)	
Sick leave	2 (6.7)	5 (16.7)	1 (3.3)	
Retired	4 (13.3)	5 (16.7)	9 (30.0)	
Income, n (%)				.518
≤NMW	15 (50.0)	15 (50.0)	13 (43.3)	
1–2 × NMW	11 (36.7)	6 (20.0)	11 (36.7)	
2–4 × NMW	3 (10.0)	8 (26.7)	6 (20.0)	
>4 × NMW	1 (3.3)	1 (3.3)	0 (0.0)	
Time in treatment, n (%)				.822
0 to 2 months	4 (13.3)	6 (20.0)	5 (16.7)	
2 months to 1 year	6 (20.0)	7 (23.3)	9 (30.0)	
more than 1 year	20 (66.7)	17 (58.6)	16 (53.3)	
Type of treatment, n (%)				.702
Psychological	10 (33.3)	14 (46.5)	12 (40.0)	
Psychiatric	10 (33.3)	6 (20.2)	10 (33.3)	
Psychological and psychiatric	10 (33.3)	10 (33.3)	8 (26.7)	

(Continues)

TABLE 1 (Continued)

	ABCT + TAU (n = 30)	MBSR + TAU (n = 30)	TAU (n = 30)	p
Medications, median (interquartile range)	3 (2–4)	3 (2–4)	4 (2–5)	.295
Anxiolytics, n (%)	19 (63.3%)	22 (73.3%)	24 (80%)	.349
Antidepressants, n (%)	23 (76.7%)	22 (73.3%)	23 (76.7%)	.942
Analgesics, n (%)	6 (20%)	7 (23.3%)	5 (16.7%)	.812
Antipsychotics, n (%)	2 (6.7%)	1 (3.3%)	2 (6.7%)	.809
Anti-inflammatory, n (%)	0 (0%)	2 (6.7%)	4 (13.3%)	.117
Antiepileptic, n (%)	4 (13.3%)	3 (10%)	3 (10%)	.894
Others, n (%)	13 (43.3%)	14 (46.7%)	15 (50%)	.875
Diagnosis, n (%)				.260
Depression	7 (23.3)	5 (16.7)	9 (30.0)	
Anxiety	9 (30.0)	14 (46.5)	7 (23.3)	
Adaptive	9 (30.0)	8 (26.7)	13 (43.3)	
Mixed	5 (16.7)	3 (10.0)	1 (3.3)	
Comorbidities, n (%)				
Dysthymia	4 (13.3%)	4 (13.3%)	2 (6.7%)	.638
Personality disorder	2 (6.7%)	4 (13.3%)	0 (0%)	.117
Pain condition	2 (6.7%)	4 (13.3%)	0 (0%)	.117
Obsessive-compulsive disorder	1 (3.3%)	1 (3.3%)	2 (6.7%)	.770
Clinical and process variables				
DASS-21 total, mean (SD) (0–63)	27.40 (12.56)	26.50 (15.11)	26.47 (14.08)	.958
DASS-21 depression, mean (SD) (0–42)	17.80 (10.97)	15.87 (11.99)	17.00 (11.82)	.811
DASS-21 anxiety, mean (SD) (0–42]	15.27 (9.59)	15.07 (11.31)	16.00 (9.32)	.932
DASS-21 stress, mean (SD) (0–42)	21.73 (8.01)	22.07 (9.72)	19.93 (10.35)	.642
FFMQ total, mean (SD) (39–195)	106.07 (12.76)	114.03 (15.49)	111.40 (19.24)	.153
SCS total, mean (SD) (26–130)	66.53 (10.42)	64.63 (17.19)	64.80 (14.40)	.850

Abbreviations: ABCT, attachment-based compassion therapy; ABCT + TAU, attachment-based compassion therapy plus treatment as usual; MBSR + TAU: mindfulness-based stress reduction plus treatment as usual; TAU, treatment as usual.

No differences were observed between ABCT + TAU and MBSR + TAU at any assessment point (Table 3).

3.5 | Mediating role of mindfulness and self-compassion

Indirect effects analyses are detailed in Table 4. When comparing ABCT + TAU to TAU, the SCS was found to be a significant mediator for the long-term change observed in the DASS-21 total score and the "Stress" subscale. For the "Depression" subscale, both SCS and FFMQ were found to be significant mediators. No significant indirect effect was found for the "Anxiety" subscale. On the other hand, the comparison between MBSR + TAU and TAU alone indicated that both FFMQ and SCS were significant mediators of total DASS-21 scores and its three subscales (direct effects are in Table S5).

4 | DISCUSSION

Our results indicate that ABCT is effective for reducing affective distress when compared to TAU, both posttreatment and at 6-month follow-up (see the number needed to treat in Appendices). The effect sizes were large in both cases, which means that the effectiveness of

TABLE 2 Descriptive statistics and between-group analyses for primary, secondary, and process outcomes (ITT approach of complete cases)

Outcomes	TAU M (SD)	MBSR + TAU M (SD)	ABCT + TAU M (SD)	TAU vs. MBSR + TAU			TAU vs. ABCT + TAU			MBSR + TAU vs. ABCT + TAU		
				d	t (p)	B (95% CI)	d	t (p)	B (95% CI)	d	t (p)	B (95% CI)
Primary												
DASS-tot (0–63)												
Baseline	26.93 (8.05)	26.94 (7.37)	27.11 (7.55)									
Posttreatment	28.45 (8.50)	16.95 (8.79)	15.42 (8.63)	−1.46	−3.49 (<.001)	−11.51 (−17.97 to −5.05)	−1.66	−4.07 (<.001)	−13.20 (−19.57 to −6.84)	−0.22	−0.58 (.563)	−1.71 (−7.49 to 4.08)
Follow-up	25.53 (8.55)	16.96 (8.78)	18.52 (8.81)	−1.09	−2.60 (.009)	−8.59 (−15.09 to −2.10)	−0.90	−2.19 (.029)	−7.20 (−13.63 to −0.76)	0.18	0.46 (.647)	1.36 (−4.46 to 7.18)
Secondary												
DASS-D (0–21)												
Baseline	17.14 (6.15)	16.87 (5.63)	17.32 (5.76)									
Posttreatment	17.10 (6.35)	10.93 (6.69)	9.09 (6.56)	−0.98	−2.37 (.018)	−5.91 (−10.80 to −1.02)	−1.35	−3.33 (.001)	−8.19 (−13.01 to −3.38)	−0.40	−0.97 (.334)	−2.28 (−6.90 to 2.35)
Follow-up	15.69 (6.60)	10.35 (6.70)	9.62 (6.70)	−0.84	−2.01 (.044)	−5.07 (−10.01 to −0.14)	−1.03	−2.50 (.012)	−6.25 (−11.16 to −1.36)	−0.20	−0.50 (.617)	−1.19 (−5.84 to 3.47)
DASS-A (0–21)												
Baseline	15.68 (5.75)	15.47 (5.26)	15.51 (5.39)									
Posttreatment	17.53 (5.95)	10.56 (6.27)	9.59 (6.14)	−1.20	−2.86 (.004)	−6.76 (−11.39 to −2.13)	−1.37	−3.34 (.001)	−7.78 (−12.34 to −3.22)	−0.19	−0.51 (.609)	−1.11 (−5.35 to 3.13)
Follow-up	15.15 (6.15)	9.04 (6.28)	11.86 (6.28)	−1.05	−2.47 (.013)	−5.90 (−10.58 to −1.23)	−0.55	−1.32 (.187)	−3.12 (−7.76 to −1.51)	0.51	1.21 (.225)	2.64 (−1.62 to 6.91)
DASS-S (0–21)												
Baseline	21.06 (6.45)	21.59 (5.91)	21.50 (6.05)									
Posttreatment	22.69 (6.70)	12.57 (7.05)	12.37 (6.89)	−1.69	−4.05 (<.001)	−10.65 (−15.79 to −5.50)	−1.69	−4.16 (<.001)	−10.76 (−15.83 to −5.69)	−0.02	−0.05 (.960)	−0.12 (−4.80 to 4.56)
Follow-up	20.29 (6.95)	14.66 (7.06)	15.69 (7.03)	−0.98	−2.32 (.020)	−6.15 (−11.35 to −0.95)	−0.79	−1.92 (.055)	−5.04 (−10.19 to 0.12)	0.18	0.47 (.637)	1.13 (−3.57 to 5.84)
Process												

(Continues)

TABLE 2   (Continued)

Outcomes	TAU M (SD)	MBSR + TAU M (SD)	ABCT + TAU M (SD)	TAU vs. MBSR + TAU			TAU vs. ABCT + TAU			MBSR + TAU vs. ABCT + TAU		
				d	t (p)	B (95% CI)	d	t (p)	B (95% CI)	d	t (p)	B (95% CI)
FFMQ-tot (39-195)												
Baseline	109.71 (12.35)	110.03 (11.41)	109.06 (11.63)									
Posttreatment	111.61 (12.75)	130.87 (13.38)	124.37 (13.27)	1.56	**4.21 (<.001)**	18.94 (10.13 to 27.76)	1.10	**3.03 (.002)**	13.41 (4.73 to 22.08)	−0.47	−1.09 (.276)	−5.59 (−16.64 to 4.47)
Follow-up	115.40 (13.40)	134.16 (13.39)	127.76 (13.50)	1.52	**4.25 (<.001)**	19.44 (10.48 to 28.41)	1.06	**3.09 (.002)**	14.01 (5.12 to 22.90)	−0.46	−1.06 (.289)	−5.49 (−15.61 to 4.64)
SCS-tot (26-130)												
Baseline	64.71 (10.75)	64.66 (9.85)	65.21 (10.08)									−4.99 (−14.45 to 4.48)
Posttreatment	65.18 (11.10)	78.59 (11.68)	78.97 (11.44)	1.28	**3.33 (.001)**	13.46 (5.54 to 21.39)	1.25	**3.34 (.001)**	13.30 (5.50 to 21.10)	−0.02	−0.09 (.930)	−0.42 (−9.82 to 8.97)
Follow-up	68.82 (11.45)	87.74 (11.69)	83.57 (11.67)	1.80	**4.64 (<.001)**	18.97 (10.96 to 26.98)	1.34	**3.52 (<.001)**	14.26 (6.31 to 22.21)	−0.47	−1.03 (.302)	

Note: Significant effects are presented in bold.

Abbreviations: ABCT + TAU, attachment-based compassion therapy + TAU (*n* = 22); DASS-A, depression, anxiety and stress scale—anxiety score; DASS-D, depression, anxiety and stress scale-depression score; DASS-S, depression, anxiety and stress scale-anxiety score;   DASS-tot, depression, anxiety and stress scale-total score; FFMQ-tot, five facets mindfulness questionnaire-total score; MBSR + TAU, mindfulness-based stress reduction + TAU (*n* = 21); SCS-tot, self-compassion scale-total score; TAU, treatment as usual (*n* = 25).

TABLE 3 Bootstrap indirect effects in the mediational models (effects of pre-to-post-changes in the process outcomes of FFMQ and of SCS on pre-to-follow-up changes in the DASS total and subscales)

ABCT + TAU vs. TAU Outcome and mediators	Indirect effects			
	B	SE	95% CI	% Of total
DASS total				
FFMQ total	−1.51	1.01	−4.09 to 0.00	40.6%
SCS total	−2.17	0.91	−4.38 to −0.72	59.0%
DASS depression				
FFMQ total	−1.59	0.89	−3.83 to −0.22	47.5%
SCS total	−1.43	0.86	−3.56 to −0.08	42.7%
DASS anxiety				
FFMQ total	−0.23	0.60	−1.62 to 0.79	17.8%
SCS total	−1.23	0.77	−3.01 to 0.07	95.3%
DASS stress				
FFMQ total	−1.18	0.88	−3.46 to 0.14	42.5%
SCS total	−1.69	0.74	−3.55 to −0.55	60.6%
MBSR + TAU vs. TAU				
Outcome and mediators	B	SE	95% CI	% Of total
DASS total				
FFMQ total	−5.70	2.82	−12.59 to −1.33	62.8%
SCS total	−5.58	2.56	−12.00 to −1.69	61.5%
DASS depression				
FFMQ total	−3.08	1.77	−7.85 to −0.45	55.5%
SCS total	−3.45	1.58	−7.68 to −1.11	62.2%
DASS anxiety				
FFMQ total	−3.77	1.83	−8.36 to −0.90	65.1%
SCS total	−3.83	1.72	−8.09 to −1.18	66.2%
DASS stress				
FFMQ total	−4.54	2.52	−10.62 to −0.55	66.6%
SCS total	−3.89	2.27	−9.55 to −0.54	57.0%

Abbreviations: ABCT, attachment-based compassion therapy; B, regression coefficient of the bootstrapped indirect effect; 95% CI, Bias corrected 95% confidence interval of indirect effects; DASS, Depression, Anxiety and Stress Scale; FFMQ, Five Facets of Mindfulness Questionnaire; MBSR, mindfulness-based stress reduction; % of total, percentage of total effects; SCS, Self-Compassion Scale.

ABCT on affective distress is maintained in the long-term. This represents a promising result, considering the limitation shown by many psychotherapies regarding their loss of effects at follow-up (Wang et al., 2018; Williams & Mercer, 2015). The study conducted by

Montero-Marin et al. (2018) on the effect of ABCT on different clinical outcomes in fibromyalgia patients also reported large effects both posttreatment and at the 3-month follow-up. Similarly, Navarro-Gil et al. (2020) observed that the effects of ABCT on different self-compassion dimensions were large and that they were maintained after 6 months. Thus, our findings add to the promising body of evidence regarding the capacity of ABCT to produce long-term effects. Regarding treatment adherence, the present study observed a high proportion of completers (76.7%), similar to the rate shown in previous studies, and very positive opinions regarding the intervention (see Appendices).

However, the results of the present study suggest that ABCT is no more effective than other "third wave" interventions such as MBSR. The latter was superior to TAU, both posttreatment and at follow-up and with large effect sizes. Along the same lines, both ABCT and MBSR presented superior transdiagnostic effectiveness when compared to TAU, but no differences were observed between the two interventions. MBSR has been described as an effective intervention for addressing different symptomatology, including anxiety and depression (Bohlmeijer et al., 2010; Chiesa & Serretti, 2009; Lauche et al., 2013). One limitation of this intervention has typically been the loss of effect in the long-term, and some authors have hypothesized that the mechanisms that produce the therapeutic change might be too practice-dependent (Parsons et al., 2017; Pérez-Aranda et al., 2019), but frequency and/or intensity of home practice was not recorded in our study and therefore its impact on the long-term effectiveness of the interventions could not be evaluated. Nonetheless, our study shows that the effect of MBSR was maintained in the long term, which could possibly be related to a great skills acquisition by those individuals who completed the intervention.

Our results also indicated that the long-term effects of ABCT on affective distress were mediated by self-compassion, and not by mindfulness, although this variable was a significant mediator for depressive symptomatology. On the other hand, and in line with previous findings (Gu et al., 2015; Kuyken et al., 2010; Pérez-Aranda et al., 2019), the effect of MBSR was mediated by both mindfulness and self-compassion. These results seem to corroborate mindfulness as a possible specific mechanism of change in mindfulness-based interventions, whereas self-compassion might be a more extended mediator of "third wave" interventions. Mindfulness and self-compassion could be functioning as mediators in MBSR, but they may not be as strong in the case of ABCT, in which other mechanisms like psychological flexibility or the attachment style might also be relevant (Hayes et al., 2011; Montero-Marín et al., 2018; Navarro-Gil et al., 2020).

Nevertheless, our sample is very heterogeneous in terms of the characteristics of diagnosis and demographics, which limits the generalization of our findings. Also, inter-rater reliability for the diagnoses was not evaluated, and our results were based on self-reported measures, which may imply a certain bias. In this sense, future studies should include other measures of anxiety and depression to better assess this symptomatology. In addition, we also stress that the MBSR program was modified by ruling out the full-day retreat included in the original protocol, although this modification did not minimize the effectiveness of MBSR. Regarding process variables, both FFMQ and SCS include subscales that

were not used for the present study and that could offer an interesting view on some effects. Finally, all participants were receiving psychological and/or psychiatric treatment during the study. Although the proportion of patients receiving each type of additional treatment was similar in the study groups, and therefore its effects should not have influenced our results, future studies should analyse the effectiveness of ABCT as a stand-alone intervention. Also, the findings of the present study will be complemented with an economic evaluation in which the interventions' impact on the patients' quality of life will be compared along with the incremental costs produced by each treatment, to assess if ABCT and MBSR are not only more efficacious than TAU but also produce significant improvements in quality of life, measured by the "European Quality of Life Scale-5 Dimensions," and reductions in the costs associated to depressive, anxious, and adjustment disorders, using the "Client Service Receipt Inventory" (Montero-Marin et al., 2019).

In summary, our findings support the effectiveness of ABCT for treating anxiety, depressive and adjustment disorders, as its effects on affective distress were significant and large both posttreatment and at 6-month follow-up when compared to TAU. Nonetheless, ABCT was not superior to MBSR, which also produced similar results when compared to the control group. Self-compassion seems to be a generic mediator of these two "third-wave" interventions, which means that there may be a more or less explicit training process taking place, while mindfulness could be a more specific pathway of change for MBSR.

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CONFLICT OF INTERESTS
The authors declare that there are no conflict of interests.

DATA AVAILABILITY STATEMENT
The data that support the findings of this study are available from the corresponding author upon reasonable request.

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SUPPORTING INFORMATION

Additional Supporting Information may be found online in the supporting information tab for this article.

APPENDIX:

Number needed to treat

Other secondary analyses explored the clinical significance of improvements using the Jacobson and Truax method (1991) to establish both the cut-off point and reliable change index for the DASS-21 total score. This classification criterion was used to calculate absolute risk reduction and number needed to treat (NNT); a 95% CI for each NNT was calculated. The results are summarized in Table A1. Using the Jacobson and Truax method of reliable change, the absolute risk reduction (ARR) in ABCT versus TAU alone was 41.06% (95% CI = 17.46%–64.67%) with NNT = 3 (95% CI = 1.5–5.7), meaning that three patients would need to be treated with ABCT for one of them to become a responder, who would not have done so in the TAU group. The ARR in MBSR versus TAU alone was 31.75% (95% CI = 7.49%–56.01%) with NNT = 4 (95% CI = 1.8–13.4). At follow-up, no significant ARRs were found in any case, and therefore the NNTs computed were not statistically significant.

Credibility and unwanted effects of the interventions

The adapted version of the Credibility/Expectancy questionnaire (CEQ) (Devilly & Borkovec, 2000) was used to assess possible differences between acceptance and any potential aversive effects that the interventions caused for the participants; it is a 6-item questionnaire that was used for assessing participants' opinions at the end of the final treatment session.

As seen in Table A2, both ABCT and MBSR were considered more logical, satisfactory, recommendable and useful than TAU, with high scores in all the categories; no significant differences were observed between the two interventions. With regard to aversive effects, as expected, the three groups reported very low frequencies, with no significant differences between groups.

TABLE A1 Number needed to treat (NTT) and absolute risk reduction (ARR)

Posttreatment		
	NNT	ARR
ABCT + TAU vs. TAU	3 (1.5 to 5.7)	41.06% (17.46 to 64.67)
MBSR + TAU vs. TAU	4 (1.8 to 13.4)	31.75% (7.49 to 56.01)
Follow-up		
	NNT	ARR
ABCT + TAU vs. TAU	5[a]	23.78% (−3.57 to 51.12)
MBSR + TAU vs. TAU	5[a]	21.61% (−6.16 to 49.38)

Note: Jacobson and Truax (1991).

[a]Because the 95% confidence interval (CI) for the absolute risk reduction extends from a negative number (treatment may harm) to a positive number (treatment may benefit), it is tricky to compute a 95% CI for the NNT.

TABLE A2 Credibility and unwanted effects of TAU, MBSR + TAU, and ABCT + TAU intervention arms at posttest

Outcomes	TAU M (SD)	MBSR + TAU M (SD)	ABCT + TAU M (SD)	TAU vs. MBSR + TAU d	TAU vs. MBSR + TAU t (p)	TAU vs. ABCT + TAU d	TAU vs. ABCT + TAU t (p)	MBSR + TAU vs. ABCT + TAU d	MBSR + TAU vs. ABCT + TAU t (p)
Credibility (0–10)	n = 22	n = 20	n = 23						
Total score	6.87 (2.11)	9.15 (1.02)	8.97 (1.10)	1.36	4.52 (<.001)	1.26	4.16 (<.001)	−0.17	0.55 (.583)
Logic	7.18 (2.09)	8.95 (1.47)	9.00 (1.04)	0.97	3.14 (.003)	1.11	3.67 (.001)	0.04	0.13 (.897)
Satisfaction	6.86 (2.12)	9.10 (1.25)	9.04 (1.15)	1.27	4.22 (<.001)	1.29	4.26 (<.001)	−0.05	0.16 (.871)
Recommend to a friend	6.85 (2.82)	9.60 (0.75)	9.35 (1.07)	1.31	4.41 (<.001)	1.18	3.91 (.001)	−0.27	0.87 (.387)
Utility for other problems	6.77 (2.29)	8.95 (1.23)	9.00 (1.17)	1.17	3.89 (.001)	1.24	4.09 (<.001)	0.04	0.14 (.892)
Personal utility	6.73 (2.49)	9.15 (1.23)	8.43 (2.23)	1.21	2.93 (<.001)	0.72	2.42 (.020)	−0.39	1.33 (.191)
Aversive effects (0–10)	n = 22	n = 20	n = 23						
Posttreatment	1.95 (2.90)	0.75 (2.02)	1.82 (2.82)	−0.48	1.54 (.131)	−0.05	0.15 (.880)	0.43	1.41 (.166)

Abbreviations: ABCT + TAU, attachment-based compassion therapy + TAU; MBSR + TAU, mindfulness-based stress reduction + TAU; TAU, treatment as usual.