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The effectiveness of brief cognitive analytic therapy for anxiety and depression: A quasi-experimental case—control study

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Objectives. To investigate the effectiveness of an 8-session cognitive analytic therapy (CAT) protocol for patients with anxiety and depression in the context of relational problems, personality disorder traits, or histories of adverse childhood experiences and then to compare outcomes with cognitive behavioural therapy (CBT).

Methods. The study was conducted in a single Improving Access to Psychological Therapies (IAPT) service and used sessional outcome monitoring. Propensity score matching was used to derive equivalent CAT (N=76) and CBT (N=73) samples through matching intake characteristics. Longitudinal multilevel modelling (LMLM) compared patterns of symptomatic change over time between the two therapies.

Results. LMLM found no significant differences between CAT and CBT in depression, anxiety, and functional impairment outcomes and showed similar symptom change trajectories. Small between-therapy post-treatment effects and medium-to-large within-therapy effects were found. CAT patients attended significantly more sessions, and the CAT dropout rate was significantly lower.

Conclusions. Brief CAT appears acceptable and effective for patients with anxiety and depression in the context of complex relational problems when delivered within the high intensity tier of an IAPT service. The potential added value of CAT in IAPT services is discussed.

Practitioner points

- Practitioners (under appropriate supervision) could use 8-session CAT when treating patients with anxiety and depression in the context of clinical complexity.
- The 8-session CAT model holds organizational promise in IAPT services.
- Brief CAT interventions should retain theoretical integrity.

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The NICE guidelines for anxiety and depression were implemented at a population level in 2008 in England through a national dissemination project called *Improving Access to Psychological Therapies* (IAPT). National implementation was based on promising results from two initial IAPT demonstration 'pathfinder sites' (Clark et al., 2009, 2018). IAPT has transformed the organization of talking treatments in Primary Care (Firth, Barkham, & Kellett, 2015), with the programme continuing to grow and now being inclusive of all ages and also different patient groups (e.g., comorbid long-term physical health conditions). IAPT interventions are highly standardized and delivered following the treatment protocols from randomized controlled trials (RCTs) forming the basis of the NICE guidelines (Roth & Pilling, 2008). A recent meta-analysis of practice-based IAPT studies (Wakefield et al., 2020; k = 47) demonstrated large pre–post treatment effects for depression (d = 0.87, p < .0001) and anxiety (d = 0.88, p < .0001), with a moderate effect on functional impairment (d = 0.55, p < .0001).

IAPT services operate a stepped-care approach to the delivery of psychological care (Bower & Gilbody, 2005). In the first step, brief low intensity psychoeducational interventions based on cognitive behavioural theory predominate and these are delivered by psychological well-being practitioners (National Collaborating Centre for Mental Health, 2018). Lengthier high intensity therapies are delivered at the next step, mainly consisting of cognitive behavioural therapy (CBT) and counselling (Clark et al., 2018) delivered by qualified therapists. Accordingly, a concern has been raised about a lack of choice in IAPT services regarding high intensity interventions. A recent development therefore has been to increase the breadth of high intensity intervention offer in services to additionally include psychodynamic-interpersonal therapy (PIT), dynamic interpersonal psychotherapy (DIT), counselling for depression (CfD), and couple work for depression (CwD). However, surveys of IAPT service provision indicate that out of N = 114 services analysed, only one service offered the full range of the five NICErecommended therapies for depression (i.e., CBT, PIT, DIT, CfD, and CwD), with N = 40services offering 4/5 recommended therapies (Perfect, Jackson, Pybis, & Hill, 2016). Service plurality in the low intensity IAPT offer has been unfortunately much slower to develop. But, PIT has been adapted for a psychoeducational group format (Lemma & Fonagy, 2013) and there is also a psychoeducational version of cognitive analytic therapy (Kellett, Bee, Aadahl, Headley, & Delgadillo, 2020; Meadows & Kellett, 2017).

Cognitive analytic therapy (CAT) uses a time-limited, relational, collaborative, integrative, and transdiagnostic approach (Ryle & Kerr, 2002). The availability of CAT has been supported through various training structures and so CAT is now practised internationally (Ryle & Kellett, 2018). CAT is offered in 8-, 16-, or 24-session protocols according to the level of complexity, with routine services offering the lengthier version to patients with personality disorders (Marriott & Kellett, 2014). CAT follows a reformulation, recognition, and revision theoretical structure regardless of the duration of treatment (Ryle & Kerr, 2002). The 24-session version differs in terms of integrating the structural multiple self-states model (Pollock, Broadbent, Clarke, Dorrian, & Ryle, 2001) into the reformulation and recognition phases and there are specific CAT tools to facilitate this work such as the states description procedure (Ryle, 2007). CAT has a competency framework to guide practice (Parry, Bennett, Roth, & Kellett, 2020) and a competency measure to evaluate practice (Bennett & Parry, 2004). A recent meta-analysis (Hallam, Simmonds-Buckley, Kellett, Greenhill, & Jones, 2020) found that CAT significantly outperformed control comparators in randomized controlled trials at the end of treatment (ES = 0.36, Z = 2.25; p = .024) and was equivalent at follow-up (ES = 0.00, Z = 0.03; p =.975).

This recent review also highlighted the relative lack of evidence for the 8-session version of the model (i.e., only 2 of the 28 studies in the narrative review evaluated 8-session CAT; one RCT and practice-based study in a pain management service) and also the urgent need to increase evidence of effectiveness with anxiety and depression. Baronian and Leggett (2019) piloted an 8-session CAT protocol in a pain management service, finding that 28% of the N=53 sample had a reliable and clinically significant reduction in distress. Furthermore, a recent study (Kellett & Stockton, 2020) showed that 8-session CAT was an effective treatment for obsessive morbid jealousy.

CAT has been piloted in some IAPT services despite not being one of the NICE approved therapies for depression and anxiety. Piloting as a high intensity IAPT therapy has been based on two drivers. Firstly, the inclusion of CAT as a listed psychological therapy for IAPT Serious Mental Illness – Personality Disorder, at University College London (UCL-CORE) and so as a potential treatment for IAPT patients presenting with more complex relational problems and/or adverse childhood histories. Secondly, CAT's time-limited approach fitting well with the high patient throughput demanded by IAPT. The presence of personality difficulties has been shown to independently predict reduced absolute change on depression, anxiety, and functioning outcome measures in IAPT services (Goddard, Wingrove, & Moran, 2015). The majority the CAT evidence base is in such clinical populations with (Hallam et al., 2020) moderate-to-large pre–post improvements in interpersonal problems (ES = 0.74; Z = 8.08; p < .001) and a small, significant effect in favour of further improvements in interpersonal difficulties over the follow-up period (ES = 0.38; Z = 4.08; p < .001).

This project therefore sought to investigate the outcomes from a pilot service delivering the briefest 8-session version of the CAT model in IAPT to patients with complex clinical presentations and also to benchmark outcomes with well-matched cases of routinely delivered CBT. The study hypotheses were as follows: (1) CAT and CBT will have comparable change trajectories, (2) CAT and CBT will produce comparable effect sizes, and finally (3) session attendance and dropout rates will be similar across the two therapies.

Methodology

Ethics, study design, and setting

This was a retrospective, quasi-experimental, effectiveness study with matched controls. Ethical approval was obtained (REF: 19/HRA/0025) to analyse data from a single IAPT service in the South of England. The study used routinely collected session-by-session outcome measures to investigate trajectories of change and to compare CAT outcomes against matched CBT cases. When CAT was commenced in the IAPT service under study, the duration commissioned was 8 sessions, in order to match the length of intervention offered by other psychological therapists offering counselling interventions in the high intensity tier of the service.

Sample selection and characteristics

To be included in the study data set as a CAT case, the case record was from a patient that (1) received at least one and up to eight sessions of CAT in the high intensity step of the service; (2) presented with either anxiety or depression; and (3) reported complex relational problems, personality disorder traits, or histories of adverse childhood

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experiences. The sample selection diagram in Figure 1 outlines how those patients that met inclusion were filtered into the final analysed data sets. To be included in the study data set as a CBT case, the case record was from a patient that received at least one and up to eight CBT sessions for anxiety or depression, and their baseline demographic and clinical characteristics were closely matched to those of the CAT cases (see Statistical analysis section). The high intensity CBT protocols delivered in IAPT services dictate the delivery of 16–20 sessions. However, in order to undertake a methodologically appropriate comparison with the shorter 8-session CAT treatment, the analysis only included session-by-session outcome measures up to session 8 for both CBT and CAT cases meeting the study inclusion criteria. This enabled this study to (1) control for treatment duration; (2) model and compare growth curves within the same treatment window of 8 weeks (i.e., where most changes tend to be observed during psychotherapy; Robinson, Delgadillo, & Kellett, 2020); and (3) minimize the influence of extreme outliers in the lengthier CBT treatments which may have artificially altered the shape of the growth model (Bhandary, 1995) relative to the growth curve for the CAT treatments.

8-session CAT treatment description

The 8-session CAT protocol was developed for IAPT services. The constraints of this high volume setting were considered during the design process, as some therapists could see 25 patients per week. This removed early narrative reformulation letters due to the acknowledged burden of preparation time of these resources outside of sessions (Denman, 2001). Pragmatically, the 8-session model therefore emphasized early mapping of reciprocal roles and procedures, with the narrative reformulation element being integrated (in reduced form) into the goodbye letter prepared by the CAT therapist. Kellett et al. (2018) conducted a dismantling trial of 8-session CAT within IAPT for depressed patients, which showed that the absence of the traditional reformulation letter did not impair the outcome of therapy. Therefore, there was sound practical and empirical support for the decision to remove the narrative reformulation element.

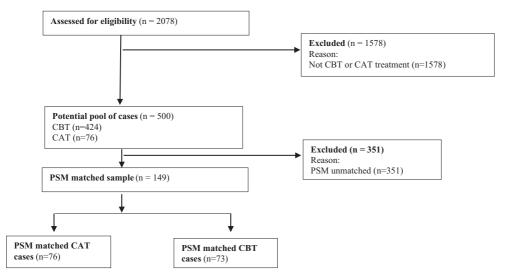


Figure 1. Sample selection flow diagram.

White and Hepple (2020) have detailed the brief 8-session CAT in IAPT model to show that the protocol remains theoretically grounded in the reformulation, recognition, revision (and ending) structure of the CAT model. This differs from the 16- or 24-session version of the model by concentrating during the reformulation phase on the more flexible mapping of roles and procedures (i.e., rather than culminating in a formal narrative reformulation). This approach was initially tested in the application of CAT tools to an open CAT group (Hepple & Bowdrey, 2015). Table 1 describes the 8-session intervention, and all therapeutic tasks listed across the phases are informed by the therapist's direct experience of working with the patient as informed by the CAT competency model (Parry et al., 2020). CAT was delivered by ACAT accredited CAT therapists or psychotherapists or by CAT trainees undergoing an ACAT accredited Foundation level CAT training specifically targeted at those working in IAPT settings. CAT therapists required to have at least one supervised 8-session case during the two-year training. CAT psychotherapy training requires a further two years of training. All the CAT treatments were supervised by an ACAT accredited CAT psychotherapist and supervisor.

Table I. Description of the 8-session CAT

Session (phase)	Clinical content
Sessions I–3 (reformulation)	Building of a collaborative therapeutic relationship. Gathering of information relating to the patient's history. Introducing the relational nature of the CAT model and the focus on analysis and change of chronic relational patterns. Drawing a genogram to identify key childhood relationships. Completion of the psychotherapy file. Identification of target problems (TPs) and target problem procedures (TPPs; traps, snags and dilemmas)
Session 4 (reformulation)	Introduction to reciprocal roles by creating a sequential diagrammatic reformulation explanatory diagram. Using the SDR to show that reciprocal roles represent relational patterns that have an explicit cause and effect embedded in them. Using the SDR to show when the patient is in the top or bottom of each reciprocal role. Using the SDR to show self:self, self:other, and other:self forms of relating
Sessions 5–7 (recognition and revision)	The concept of 'core pain' added to SDR to name the unmanageable feelings. Analysis or enactments in relationships (including the therapeutic relationship). Addition and use of the observing eye to the SDR. Rupture-repair as needed. Working with the impending ending. Bespoke and idiographic exits are added to the SDR to facilitate and support change (practised via between-session homework). Invitation to bring a goodbye letter to the therapist for the final session
Session 8 (ending)	Goodbye letters between patient and therapist are shared and exchanged at the end of treatment. Emphasize main links between early relational patterns and TPs and TPPs. Reflection on the therapy journey, reenactments in the therapy relationship and naming of the jointly discovered exits and ability for self-reflection. If the client has been unable to write a letter, finding time in the session to allow the patient to opportunity to write a summary

Outcome measures

Patient-reported outcome measures were completed prior to each weekly session, in keeping with routine practice in IAPT services. The Generalized Anxiety Disorder-7 (GAD-7) measures anxiety symptom severity (Spitzer, Kroenke, Williams, & Lowe, 2006). The seven items are scored on a Likert scale (0-3), yielding a total severity score between 0 and 21. The GAD-7 has good validity and reliability and uses a cut-off ≥ 8 to screen for clinically significant anxiety disorders, with sensitivity and specificity values of 89% and 82%, respectively (Spitzer et al., 2006). The Patient Health Questionnaire-9 (PHQ-9) measures depression symptom severity. The nine items are scored on a Likert scale (0-3), vielding a total severity score between 0 and 27 (Kroenke, Spitzer, & Williams, 2001). The PHQ-9 has good validity and reliability (Wittkampf, Naeije, Schene, Huyser, & van Weert, 2007) using a clinical cut-off ≥ 10 , with sensitivity and specificity values of 77% and 94%, respectively (Kroenke et al., 2001). The Work and Social Adjustment Scale (WSAS) measures the impact of mental health problems on the person's ability to function in the areas of work, home management, social leisure activities, private leisure activities, and close relationships (Mundt, Marks, Shear, & Greist, 2002). The five items are scored on a Likert scale of 0–8 (score range is 0–40, higher scores indicating worse symptoms). The WSAS has good internal and temporal reliability and is sensitive to differences in disorder severity and responsivity to treatment (Purdie, Kellett, & Bickerstaffe, 2012).

Data pre-processing and statistical analysis

The initial pre-processing step involved identifying and selecting data from patients that had accessed either CAT or CBT at step 3 of the stepped-care treatment pathway. Propensity score matching (PSM) was then used to enable case-control matching of participants within each treatment based on available characteristics. PSM is a statistical method that enables case-control matching in such a way that balances important baseline (pre-treatment) characteristics, as a way to artificially mimic the balancing of covariates that is achieved in randomized controlled trials (Beal & Kupzyk, 2013; Rosenbaum & Rubin, 1983). This matching procedure was based on a logistic regression predicting CAT group membership, entering all available demographic and pre-treatment clinical measures as predictors (age, gender, PHQ-9, GAD-7, WSAS), using a one-to-one nearest neighbours approach with a conservative tolerance level (calliper = 0.2) specified a priori, and allowing replacement to maximize matching precision. Nonparametric tests (i.e., Mann-Whitney U and chi-square) were employed to compare differences between CAT cases and matched CBT controls (i.e., including those who were included and excluded from the final sample). Subsequent analyses followed *intention-to*treat principles, including data from all participants who commenced therapy (including completers and dropouts).

The primary analysis was undertaken using longitudinal multilevel modelling (LMLM) to compare CAT and CBT trajectories of change, using session-by-session outcomes data (PHQ-9, GAD-7, WSAS) in the sample that was derived using the PSM procedure described above (total N=149; CAT n=76; CBT n=73). Data imputation was not necessary, as LMLM is capable of modelling growth curves over missing data-points (Singer & Willett, 2003). In this way, we were able to examine trajectories of change in samples that were comparable in baseline characteristics and in treatment duration (up to the eight sessions, to control for confounding due to differential treatment lengths).

Each outcome measure was analysed in separate LMLM models. A two-level model was applied which included session-by-session outcome measure scores (level 1) nested

within cases (level 2). The model had both fixed and random effects (random intercepts and random slopes for time), with an *unstructured* covariance structure. The analysis followed conventional guidelines for multilevel modelling, in building regression models in a series of steps and then progressing from *unconditional* to fully adjusted (*conditional*) models optimized for goodness of fit (Singer & Willett, 2003). In the first part of the analysis, the initial task was to develop unconditional models which fit different time trends to find the closest fit. The trends that were tested included linear, quadratic, cubic, and log-linear terms for the time (sessions) variable. The model with the best goodness of fit was determined by the -2 Log-likelihood ratio test (Field, 2009). Following this, a conditional growth curve model was built, adding 'Sample' (i.e., treatment modality group; CAT or CBT) as a predictor along with an interaction term which served to compare trajectories of change between groups (i.e., the Time \times Sample interaction).

Between-groups effect sizes were calculated for all outcome measures comparing post-treatment means between the CAT and CBT cases. Effect sizes are reported using Cohen's d (Cohen, 1992), with the calculation used being: $d = (M_1 - M_2)/SD$ pooled where, SD pooled = $\sqrt{((SD_1^2 + SD_2^2)/2)}$. Cohen's definitions were used to interpret the between-therapy effects sizes: 'small' (d = 0.2), 'medium' (d = 0.5), or 'large' (d = 0.8; Cohen, 1992). Measures of clinically significant change (CSC) and reliable change (RC) were calculated to highlight any changes within the treatments of change pre- to posttreatment. The CSC would indicate whether an individual had made meaningful and significant change from a point of being within a 'clinical population range' to being within a 'non-clinical range' (Jacobson et al., 1984). The RC would indicate whether an individual's scores had changed more than would be determined by that of error inherent within the measure (Jacobson & Truax, 1991). These comparisons were completed on the PHQ-9 and GAD-7 measure only, since the WSAS does not have an established cut-off. Secondary analyses also investigated any differences in the number of treatment sessions received in CAT and CBT. Dropout rates (i.e., unilateral discontinuation) were examined as a proxy for treatment acceptability.

Results

The results are presented in three sections. The first section reports the sample characteristics and PSM analysis, the second section the LMLM results, with the final section summarizing the effect sizes and the dropout rates for the two therapies.

Sample characteristics

Table 2 summarises the cases eligible for inclusion before PSM procedures (CAT n=76; CBT n=424). In this sample, there were no significant age (U=17,918.00, p=.119) or gender differences (X2 (1, N=500) = 0.023, p=.879) and the number of sessions attended were equally distributed (U=18,204.50, p=.071). However, the cases allocated to CAT had significantly higher levels of depression (U=16,509.50, p<.05), anxiety (U=16,465.00, p<.05) and functional impairment (U=16,359.50, p<.05). Table 3 then summarises the demographics and baseline outcome measures for the PSM derived sample (CAT u=76; CBT u=73). No differences were apparent regarding age (u=3,1205.00, p=.188), gender (X2 (1, u=149) = 0.036, u=188) or intake PHQ-9 (u=3,3030.00, p=.151) and GAD-7 scores (u=2,877.50, p=.403) scores. However, significant differences in the baseline WSAS scores remained (u=3,176.50, p<.05).

Table 2. Characteristics of the full sample within the data set

Characteristics	All cases	All CAT cases	All CBT cases
N	2,078	76	424
Mean age (SD; range)	41.77 (15.07; 18–93)	42.58 (11.96; 18-75)	40.45 (15.08; 18-82)
Gender: n (%)	Male: 685 (33)	Male: 28 (37)	Male: 152 (36)
	Female: 1,392 (67) $n = 1$ missing	Female: 48 (63)	Female: 271 (64) $n = 1$ missing
Mean PHQ-9 session 1:	n = 465	n = 73	n = 392
(SD; range)	16.69 (5.82; 0-27)	18.12 (5.08; 6-27)	16.42 (5.92; 0.27)
Mean GAD-7 session 1:	n = 465	n=73	n = 392
(SD; range)	13.57 (5.25; 0-21)	14.85 (4.39; 0-21)	13.34 (5.37; 0.21)
Mean WSAS session 1:	n = 454	n=73	n = 381
mean (SD; range)	22.00 (0-40)	24.52 (8.72; I-40)	21.51 (9.32; 0-40)
Mean number of sessions: mean (SD; range)	6.86 (5.17; 2–40)	9.80 (5.59; 2–28)	9.19 (6.90; 2–40)

Table 3. Characteristics of the CAT and CBT patients following propensity score matching

	PSM CAT $(n = 76)$	PSM CBT $(n = 73)$
Mean age (SD)	42.58 (11.96)	39.88 (13.68)
range	18–75 [°]	19–71 Č
Gender: n	Male: 28	Male: 28
	Female: 48	Female: 45
Mean PHQ-9 session 1: (SD; range)	18.12 (5.08; 6–27)	16.70 (5.50; 0–27)
Mean GAD-7 session 1: (SD; range)	14.85 (4.39; 0–21)	14.03 (5.15; 0–23)
Mean WSAS session 1: (SD; range)	24.52 (8.72; I—40)	21.63 (8.04; 0–40)
PHQ-9 severity ranges: n (%)		
Minimal-none (0-4)	0 (0)	l (l)
Mild (5–9)	4 (5)	8 (11)
Moderate (10–14)	11 (15)	11 (15)
Moderate severe (15–19)	26 (36)	28 (38)
Severe (20–27)	32 (44)	24 (33)
GAD-7 severity ranges: n (%)	, ,	, ,
Minimal-none (0-4)	I (I)	l (l)
Mild (5–9)	7 (10)	14 (19)
Moderate (10–14)	25 (34)	19 (26)
Severe (15+)	40 (55)	39 (53)
PHQ-9 caseness start of therapy: n (%)	69 (95)	63 (86)
GAD-7 caseness start of therapy: n (%)	70 (99)	62 (85)

Outcome comparisons over time

Depression change trajectories were not significantly different comparing CAT and CBT (B=0.33, SE=0.22, p=.138) and followed a quadratic trend (see Figure 2). The effect of Time was significant (B=0.065, SE=0.028, p<.019) indicating that symptomatic improvements did occur over time within treatments. Baseline depression severity was not significantly different between CAT and CBT (B=-1.70, SE=0.90, p=.061). Anxiety change trajectories were not significantly different comparing CAT and CBT

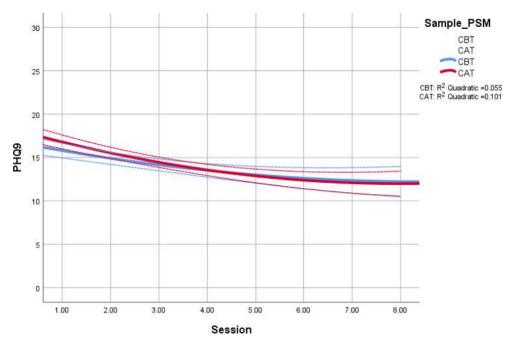


Figure 2. Sample × Time growth curve model of PHQ-9 outcomes.

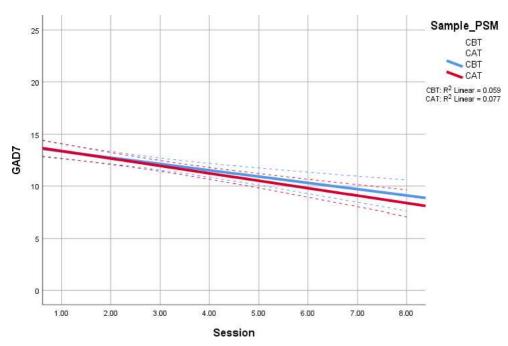


Figure 3. Sample \times Time growth curve model of GAD-7 outcomes.

(B=0.11, SE=0.19, p=.566) and followed a linear trend (see Figure 3). There was a significant effect for the linear trend for Time (B=-0.91, SE=0.12, p<.0001), but not of Sample (B=-0.50, SE=0.81, p=.537), indicating no significant differences in initial severity on the GAD-7 between CAT and CBT. WSAS change trajectories were not significantly different comparing CAT and CBT (B=0.48, SE=0.31, p=.121) and followed a linear trend (see Figure 4). There was a significant effect of a Time in the linear trend (B=-1.34, SE=0.20, p<.0001), but not differences at baseline between the therapies (B=-2.47, SE=1.38, p=.076).

Treatment effectiveness and treatment acceptability

Table 4 reports within-group (pre–post change) and between-group (post-treatment differences) effect sizes. The between-group effect across all outcomes was small, but the within-therapy effect sizes were moderate-to-large. There was a significant difference between the therapies in session attendance, t(144) = 2.890, p < .004; CAT patients attended more sessions (CAT M = 6.01, SD = 2.54) compared to CBT patients (CBT M = 4.74, SD = 2.78). Table 5 summarizes case-by-case change rates and shows that CAT and CBT produced similar change rates. There was a significant difference in the dropout rate, $X^2(1, N = 146) = 4.00$, p < .05. The dropout rate for CAT was 15.1% (i.e., n = 11 patients did not return after the second session), and the CBT dropout rate was 28.8% (i.e., n = 21 patients did not return after the second session).

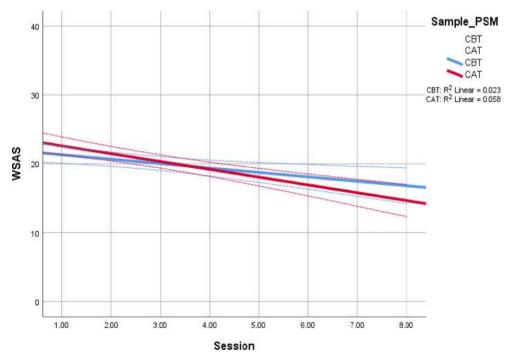


Figure 4. Sample × Time growth curve model of WSAS outcomes.

Table 4.	Effect size	data from	the PSM	data set
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	Outcome measure	Post-treatment: mean (SD)			Within-group effect size	
		CAT Mean (SD)	CBT Mean (SD)	Between-group effect size	CAT	СВТ
PSM data set	PHQ-9 GAD-7 WSAS	11.49 (7.12) 9.62 (6.33) 16.49 (10.43)	12.95 (7.61) 10.63 (6.27) 17.51 (10.90)	0.20 0.16 0.10	1.29 1.18 0.91	0.68 0.65 0.51

Table 5. Clinically significant change and reliable change from the PSM data sets

	Outcome measure	CAT Number (%)	CBT Number (%)
Caseness end of therapy*	PHQ-9	44 (60)	44 (60)
	GAD-7	43 (59)	45 (62)
Clinically significant change	PHQ-9	27 (37)	19 (26)
	GAD-7	28 (38)	18 (25)
Reliable change	PHQ-9	40 (55)	21 (29)
	GAD-7	38 (52)	27 (37)
Reliable and clinically significant change	PHQ-9	26 (36)	17 (23)
, 0	GAD-7	28 (38)	17 (23)

Note. *Caseness' refers to the number (and percentage) of individuals who continued to score above clinical cut-offs on the outcome measures at the end of treatment.

Discussion

This case-controlled and quasi-experimental study aimed to evaluate anxiety and depression outcomes from patients who accessed a brief CAT service at the high intensity step of an IAPT service, in comparison to patients who received CBT in the same service tier. The study met the identified need for more evaluations of the briefest high intensity version of this integrative model with anxiety and depression (Hallam et al., 2020) and the need to improve outcomes for patients with PD issues presenting in IAPT (Goddard et al., 2015). This study is novel as it has been the first practice-based study of high intensity CAT in IAPT and so supplements previous evidence from a controlled trial (Kellett et al., 2018). In the initial unmatched sample, all baseline symptom measures significantly differed between CAT and CBT, with patients with more severe symptom presentations being allocated to CAT. These significantly higher scores on the baseline measures for those allocated to CAT were presumably due to the impact of identified interpersonal difficulties and complex life histories. This treatment allocation trend to CAT for complex patients has been previously reported in a routine service setting (Marriott & Kellett, 2014).

In order to create a fair comparison between CAT and CBT cases, a PSM case—control sample was derived. This method enhances the rigour of quasi-experimental studies in situations where randomization cannot be performed for practical or ethical reasons (Rosenbaum & Rubin, 1983). PSM balanced the baseline characteristics across CAT and

CBT. Some minor baseline differences remained in baseline WSAS scores due to exact matching on all covariates not always being possible in PSM. The benchmarking subsequently conducted against 'treatment as usual' CBT cases was thorough and methodologically robust, as it used LMLM techniques to compare and contrast changes in symptom trajectories over time. LMLM is robust to missing data, adjusts for measurement error using data smoothing techniques (i.e., growth curves) and it makes best use of all available session-by-session scores. Overall, no significant differences between CAT and CBT were found for depression, anxiety, or functional impairment outcomes and the sessional change trajectories were highly similar. The large within-group CAT effect size compared well with the recent Hallam et al., (2020) meta-analysis of the CAT evidence base. For example, there was a large meta-analysed pre—post effect size in depression (e.g., d = 1.05, 95% CI 0.80-1.29, N = 586) and the pre—post effect size for depression in the current PSM sample was also large (i.e., d = 1.29).

These findings complement an extensive body of work identifying parity of outcome across psychotherapies delivered in routine practice. For example, comparisons between CBT and other psychotherapies have found no significant differences in depression treatment outcomes (Cuijpers et al., 2013; Cuijpers, Noma, Karyotaki, Cipriani, & Furukawa, 2019). Researchers have begun to recently question the predominance of CBT as a NICE-recommended first-line treatment for depression, as outcomes between CBT and counselling appear comparable (e.g., Pybis et al., 2017). Furthermore, meta-analysis techniques have been utilized to investigate differences between treatment formats in relation to depression treatment outcomes, to show that bone fide psychotherapies delivered in routine settings tend to be as effective as each other (Cuijpers et al., 2019). Although this comparability of treatment outcomes between different forms of psychotherapy seems fairly consistent in the treatment of depression, it is not yet clear if such a conclusion applies to specific conditions such as post-traumatic stress disorder, social anxiety, or obsessive-compulsive disorder. Nevertheless, in the treatment of common mental disorders such as depression and generalized anxiety, psychological treatments other than CBT are emerging as viable and effective options. In the current context, the patients allocated to CAT were done so because of complex relational problems, personality disorder traits, or histories of adverse childhood experiences, and so the outcome matching with CBT outcomes needs to be seen in this clinical context. Whilst Goddard et al. (2015) highlighted that comorbid personality issues tend to suppress outcomes in CBT cases, this does not seem to have been the case here in the CAT sample. This is presumably due to the relational nature of the CAT model being well suited to the relational issues typically experienced by this patient group.

Despite clear theoretical differences between CAT and CBT and differing in-session change methods (Pollock, Stowell-Smith, & Göpfert, 2006), the similarity of outcome trajectories raises interesting questions about the mechanisms of action. One possible interpretation is that bone fide psychotherapies work through similar mechanisms – referred to as *common factors* (Wampold et al., 1997). Alternatively, this apparent 'equivalence paradox' (different techniques, same results) could be the product of a situation where group-level comparisons of mean difference scores mask the probability that some treatments work better for some patients, but with comparisons of group-means not being instructive with this regard. Future research could potentially help to determine whether patients with certain features may respond differentially to CBT or CAT, adopting methods that are currently revealing differential treatment response in the field of depression (see, Cohen & DeRubeis, 2018). As such, it is possible that some patient

with certain features (e.g., comorbid personality issues) may be better candidates for CAT than for CBT, and such a hypothesis could be tested formally in future studies.

CAT and CBT change trajectories generally showed a steeper reduction in outcome scores in the earlier sessions of the intervention, which fits with prior evidence that most symptomatic improvements occur early in therapy (see systematic review by Robinson et al., 2020). There were however significant differences found between the therapies in terms of number of sessions attended and also dropout rates. CAT patients tended to attend for approximately one more session, with the CAT dropout rate 13% less than the CBT dropout rate. Hallam et al. (2020) reported a cross-study 15% CAT dropout rate and therefore the dropout rate for CAT reported here (15.1%) appears representative. It has been previously hypothesized that CAT has high acceptability for patients because of the engaging role of early reformulation (Ryle & Kerr, 2002). The brief 8-session format is attractive in terms of service efficiency in IAPT, as the protocols for many of the high intensity therapies dictate a 16- to 20-session intervention. To summarize, the findings concerning matched outcomes, greater session attendance, and a lower dropout rate in a sample of patients allocated to CAT due to their complex histories and difficult associated interpersonal dynamics would suggest that CAT has a role to play in IAPT services.

Study limitations

The current study was limited by the lack of randomization to treatment (Hsu, 1992). No formal diagnostic methods were used. Despite complex relational problems, personality disorder traits or histories of adverse childhood experiences being the reasons for allocating to CAT, no formal measures of such clinical issues were taken. There was also the lack of any post-treatment follow-up to enable an assessment of durability of effect, and this is particularly a study limitation as the CAT model stresses the importance of endings and structured follow-up (Ryle & Kerr, 2002). The minor WSAS difference that unfortunately persisted in baseline characteristics between CAT and CBT following PSM could have biased the findings. A larger CAT sample size would place more confidence in the results. It is worth noting that CAT cases were excluded from the analysis due to the recorded treatment duration being in excess of 8 sessions. The reasons for CAT therapists working beyond the structure of the 8-session approach are unknown. The inclusion of trainee therapists was also a potential limitation. The current study was also unable to investigate adherence to the model or competence of the therapists. There is a valid and reliable measure of CAT competency (e.g., CCAT; Bennett & Parry, 2004). Some argue that non-adherence to the recommended treatment protocol atrophies treatment outcomes (known as 'therapist drift'; Waller, Stringer, & Meyer, 2012), whilst others have reported that more experienced therapists responsively 'flex' protocols and still maintain positive treatment outcomes (Tschuschke et al., 2015).

Service, clinical and research implications

The equivalent findings with CBT for the 8-session version of CAT found here in the context of the differences in treatment acceptability imply that CAT is a time-efficient and effective high intensity therapy for the IAPT programme for patients that attend with trauma histories and associated complex interpersonal issues. The delivery of the 8-session CAT protocol is well suited to IAPT, particularly when mean session attendance across therapies in IAPT is 7 sessions and that patients that move-to-recovery attend 8 sessions on average (NHS England, 2019). CAT has also been shown to be effective when

delivered as a group intervention (Calvert, Kellett, & Hagan, 2015) and the development of group CAT for anxiety and depression in IAPT is now indicated. If patients are being referred to CAT because of complex relational problems, then an outcome measure indexing interpersonal problems would be a useful supplement in future studies. Future evaluation of the brief 8-session CAT model would benefit from the addition of structured follow-ups to assess the durability of the intervention. Future studies could be designed using a partially randomized patient-preference clinical trial methodology, which would enable patients' choices to be incorporated (McHugh et al., 2013). The use of disorder-specific IAPT outcome measurement would also be a valuable way of evaluating the effectiveness of the 8-session CAT model. Stiles, Shapiro, and Elliott (1986) in relation to the equivalence paradox also called for the analysis of smaller and better-specified units of action, in addition to the broad comparison of outcomes from one psychotherapy to another. Including treatment integrity checks would be a valuable addition to the methods of any future research in this area. Qualitative research with patients that dropout of CAT would also be informative to better understand issues related to treatment acceptability.

Conclusions

IAPT has been developing and evolving for over ten years with a marked innovation being the widening of choice and availability of evidence-based interventions (Wakefield et al., 2020). This study found that CAT and CBT yielded highly similar treatment outcomes, albeit with a CAT sample containing more clinical complexity. The CAT approach was more acceptable from the perspective of treatment completion/dropout and also benefited from being specifically designed to be delivered in a brief-therapy format suited to enabling service efficiency. The advantages of this relational 8-session approach are its brevity, ability to work with complexity within this time-frame and the fact that it still retains theoretical fidelity. The competencies required of the 8-session approach are not different to the 16- or 24-session versions (Parry et al., 2020). Further more rigorously controlled investigations of the effectiveness and efficacy of the brief 8-session model in IAPT appear therefore indicated.

Conflicts of interest

Stephen Kellett and Jason Hepple are core trainers on ACAT training programmes, and Jason Hepple has edited books about CAT. Stephen Kellett, Stephen White, and Jason Hepple are all CAT psychotherapists.

Author contributions

Stephen Christopher Kellett, D Clin Psy (Conceptualization; Methodology; Supervision; Writing – review & editing) Sarah Wakefield (Data curation; Formal analysis; Project administration; Writing – original draft) Jaime Delgadillo (Conceptualization; Supervision; Writing – review & editing) Stephen White (Conceptualization; Investigation; Project administration; Supervision) Jason Hepple (Conceptualization; Project administration; Supervision; Writing – review & editing).

Data availability statement

The authors will make the data publically available and will share upon reasonable request from other researchers.

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