
Article:
Power, N., Kellett, S. and Gaskell, C. (2023) Effectiveness of cognitive analytic therapy for mixed anxiety and depression in the context of borderline traits: a quasi-experimental single case design evaluation. Journal of Psychotherapy Integration, 33 (1). pp. 34-46. ISSN 1053-0479

https://doi.org/10.1037/int0000281

Effectiveness of cognitive analytic therapy for mixed anxiety and depression in the context of borderline traits: A quasi-experimental single case design evaluation

Niall Power (1): niall.power4@nhs.net, Stephen Kellett (2), Chris Gaskell (3)

Derbyshire Community Health Services NHS Foundation Trust, UK (1)

Clinical and Applied Psychology Unit, Department of Psychology, University of Sheffield, UK (2)

Salford Royal NHS Foundation Trust, UK (3)

Author Note

No sources of funding to report. The authors have no known conflicts of interest to disclose.

Acknowledgements**:** None.

Data Availability Statement: The data that support the findings of this study are available from the corresponding author upon reasonable request.

Correspondence concerning this article should be addressed to Niall Power, niall.power4@nhs.net

Abstract

The evidence base for the use of cognitive analytic therapy (CAT) as a short-term, integrative and relational psychotherapy for anxiety and depression is building. This study contributes by intensively studying change in two types of quantitative outcomes (ideographic and nomothetic) over treatment time. The study employed an A/B quasi experimental single case design method with a 25-year old male patient with a diagnosis of mixed anxiety and depression in the context of borderline personality disorder (BPD) traits. Following the 21-day baseline period (A), treatment was delivered over 77 days (B). Scores on three ideographic measures (self-worth, ability to connect with emotions and interpersonal connection) were collected daily throughout. Two nomothetic outcome measures (CORE-OM and IIP-32) were collected at four time points, including a 6-week follow-up. The intervention was adherent to the CAT model and was competently delivered. Ideographically, CAT was shown to effectively enable better connection with emotions and with people and also improved self-worth. However, little change was observed on the two nomothetic outcomes measures. The study suggests that the CAT intervention was partially successful. The study is discussed in terms of the potential of integrating single case research methods into therapy provided for patients with common mental health problems underpinned by BPD traits. Methodological limitations and clinical implications are discussed.

Keywords: cognitive analytic therapy; anxiety; depression; BPD; single case

Introduction

'Personality disorder' (PD) is a label given to individuals with chronic, narrow and limiting ways of relating to self and others which then negatively and adversely impacts on wider functioning (American Psychiatric Association; APA, 2013). Borderline personality disorder (BPD) is characterised by chronic patterns of highly distressing emotional experiences that create ongoing impairments to both self-functioning (e.g. unstable self-image, high self-criticism) and interpersonal functioning (e.g. close relationships being understood in extremes of idealisation/devaluation and oscillating between over-involvement and abandonment; APA, 2013). BPD is associated with particularly high levels of impairment (Few et al., 2013). BPD particularly as a diagnosis attracts controversy (Trull et al., 2010), within the context of the general debate about the usefulness of diagnostic labels (Guy et al., 2012).

In terms of outcome, no single psychotherapy has demonstrated clear superiority in clinical trials across all the PD diagnoses (Bateman & Fonagy, 2000). The National Health Service (NHS) in the United Kingdom (UK) therefore employ the National Institute for Health and Clinical Excellence (NICE) guidelines to inform the ingredients rather than brands of psychotherapies appropriate for intervening with PD patients (Guy et al., 2012). For example, consistent use of an integrative and collaborative therapeutic approach and treatment duration always being longer than 3-months (NICE, 2009). In cases of BPD, where reducing self-harm in females is a priority, then dialectical behaviour therapy (DBT; Linehan, 2013) is recommended as the treatment of choice (NICE, 2009).

Cognitive analytic therapy (CAT) is a psychotherapy that meets the NICE BPD treatment criteria. CAT is a time-limited, integrative and relational psychotherapy, with the 24-session version of the model typically used in PD presentations (Ryle & Kerr, 2002; Ryle & Kellett, 2018). This longer version of CAT with PD (8 and 16 session formats are also

delivered for common mental health problems) is underpinned by a structural model of PD that focuses on the formulation of multiple self-states (Pollock et al., 2001). Self-states are created via childhood trauma, maintained through ongoing dissociation and with three levels of increasing damage to reflective capacity possible (Ryle, 1997). This approach enables the CAT therapist to name, map and work with separate states in an effort to enable integration (Ryle & Kellett, 2018). CAT appears to be an acceptable, safe and effective intervention for BPD, as evidenced by the (admittedly small) number of cohort and randomised controlled trials completed thus far (Bennett et al., 2006; Chanen et al., 2008; Daly et al., 2010; Kellett et al., 2013; Ryle & Golynkina, 2000; Wildgoose et al., 2001). There have also been several studies suggesting CAT is effective in treating anxiety and depression (Brockman et al., 1987; Kellett et al., 2018). Additionally, when CAT has been compared to CBT, then anxiety and depression outcomes are matched, despite the childhood adversities of the CAT clients (Wakefield et al., 2020). Whilst there may be a presenting problem of depression or anxiety, then BPD traits are often both the underlying and maintaining mechanism of emotional distress (Zanarini et al., 2004).

A drawback of all the studies listed above is that the methodologies employed to assess change unfortunately mean that the responsivity of individual patients is obscured by creating and reporting the average group response to the intervention. Additionally, the idiosyncratic problems that patients bring to therapy are ignored, as the studies attempt to measure change through administering nomothetic outcome measures (i.e. psychometrically validated with community and clinical norms) at specified time points. This does not shed light on the shape of therapeutic change and also assumes that change, for example, in a simple pre-post design is always linear. The exclusive use of nomothetic outcome measurement in capturing change has therefore rightly been critiqued (Hill et al., 2013). A potential solution to these issues is the application of single case methods, in which the

responsivity of single patients is intensively studied over time, via the combination of both nomothetic (i.e. standardised) and ideographic (i.e. individualised and patient-specific) outcome measures. CAT is particularly well matched to the single case method, as the therapist names target problems (TPs) and target problem procedures (TPP) that underpin the presenting problem (Ryle & Kellett, 2018), and therefore TPs can therefore be easily translated into ideographic outcome measures. During CAT, TPs and TPPs are rated at each session in terms of recognition and revision. During single case methods, the intensity of this measurement is increased and also potentially supplemented by reports from others (see Kellett & Totterdell, 2013 for an example).

Single case methods are therefore a scientifically valid and clinically practicable alternative to compliment mainstream clinical research methods and is particularly appropriate for use in evaluating outcomes in routine services, in cases where evidence is thin, or in unusual clinical presentations (Morley, 2018). The method is defined by the intensive measurement of ideographic outcomes according to the phase of treatment (more experimental designs manipulate the introduction and withdrawal of interventions) and ideographic outcomes are always compared to a baseline as the control phase (Hillard, 1993). These studies generate practice-based evidence, as the primary level of analysis is the individual client; this is congruent with the natural focus of psychotherapy (McMillan & Morley, 2010). Where the ideographic measures always reflect and centre on the concerns of the patient, nomothetic measure selection may be dictated by clinical governance and audit structures in routine service settings. These can be supplemented by measures selected by the clinician to match the presenting problem of the patient.

The current paper is not the first to describe application of such methods to test the efficacy of CAT for BPD. One single case experimental design (SCED) has previously been completed of CAT with BPD (Kellett et al., 2020) using an ABAB with extended follow-up

evaluation of a 48-session (2x24 sessions) intervention. The treatment removal design was used to test and improve the female patient's sensitivity to abandonment. Ideographically, CAT was a partially effective treatment for improving sense of self and reducing self-hate and reliable change was recorded on the primary BPD nomothetic outcome measure from baseline to end of initial treatment phase. There have been no single case designs investigating the effectiveness of CAT with a male patient where borderline traits influence vulnerability to anxiety and depression. The primary aim of the current paper was to provide a worked example of how single case methodology combining different forms of quantitative outcome measurements can be applied and achieved in routine clinical practice to evaluate the effectiveness of CAT. The secondary aim was to assess the degree of synchronicity between ideographic and nomothetic outcomes. The study hypothesised that (1) ideographically, CAT would be effective in reducing the problems the patient brought to therapy (i.e. specifically, enabling better connecting to emotions and people and increasing self-worth), (2) there would be a reliable and clinically significant improvement in nomothetic outcome measures and (3) improvements in nomothetic measures would be maintained at 6-week follow-up.

Method

Context and Ethics

The participant provided written consent for the study and ethical approval was granted (ref: 041077). This is consistent with guidance on the ethics of reporting single case studies (Cooper et al., 2005). The setting was an outpatient clinic in an NHS secondary care mental health service. The therapist was a male, first-year Trainee Clinical Psychologist who had weekly clinical supervision with a Clinical Psychologist and CAT Practitioner on their clinical placement.

Design

The study design used was a basic A/B design and was therefore quasi experimental as the intervention was not manipulated (Morley, 2018). The A/B design involved a baseline phase ('A') during which ideographic measures were recorded daily during the assessment of the patient. No active change methods are used during the baseline. Kellett et al., (2021) have illustrated that therapist contact and no-therapist contact during the assessment phase of CAT has little effect on ideographic outcomes and the baselines remain stable. During the intervention phase ('B'), the ideographic measures continued to be collected and during this phase active change methods were used (McMillan & Morley, 2010). The bi-phase design was employed due to being relatively simple to integrate into routine clinical practice (Morley, 2018). The baseline (A) duration phase was 21 days (3 weeks) involving three, weekly assessment sessions. The intervention (B) was 77 days involving 11 weekly therapy sessions (one assessment session occurred prior to the design of the idographic measures). All sessions were attended. The treatment phase was initiated via the delivery of a narrative reformulation letter at session 4, as was the case with previous single-case designs using CAT (e.g. Kellett et al., 2020).

Participant

The participant (Adam: pseudonym) was a 25-year-old white, heterosexual, single British male. From the age of 18, Adam had been under the care of his General Practitioner (GP) due to mental health problems who had given him a diagnosis of 'mixed anxiety and depression'. At the time of the study, he was prescribed Paroxetine 40mg and had previously been prescribed Citalopram, Sertraline, Mirtazapine and Fluoxetine. Adam had received a short ineffective course of counselling at his local primary care service. Aside from an assessment with secondary care mental health services at the age of 18, he had no prior contact with mental health services. Adam reported a history of self-harm through cutting, bloodletting and punching himself. There was no history of mental health problems in his

immediate family. Prior to the current intervention, he had been assessed by the crisis team. The opinion was that there was evidence of BPD traits and that Adam's self-harming behaviours and suicidal thoughts would make him inappropriate for primary care mental health services. He was therefore referred to a secondary care community mental health service from crisis services. Adam was not formally diagnosed with BPD, though the current study assessment (clinical interview) identified BPD traits.

Adam was raised in a nuclear family and had five siblings (four sisters and one brother). He lived with his mother and father and was unemployed claiming welfare benefits. Although reporting that he could not remember much from his childhood, he recalled finding school challenging, as he was often bullied. Adam recalled the period from age 15-19 as chaotic involving numerous mental health crises. He recalled several close members of his family dying during this time and he was frequently using various illicit substances. When age 16, his girlfriend at the time was pregnant and had a miscarriage after which the relationship ended. Adam reported being employed as a security officer at various events which led him to observing disturbing scenes often involving injury and, on one occasion, a death. After this he found it difficult to gain and maintain employment. Adam described having no friends and few hobbies and interests.

In terms of romantic relationships, when Adam was in a long-term relationship, he described feeling intensely jealous and possessive of his partner. At age 23, Adam was in a romantic relationship, with the woman being described in an idealising manner ('perfect in every way'). He described this relationship being all-consuming and an extremely strong emotional connection was made that intensified over time. Adam described feeling extremely jealous with an intense fear of abandonment, which created controlling behaviours. He recalled deliberately causing arguments in order to test his then partner. During this 6-month relationship he reported experiencing intense and unmanageable switches to his emotional

states. Adam described historically rapidly switching from feeling good to extreme despair often without an external prompt. During this relationship and particularly after arguments, Adam would self-harm partly in an attempt to cope with the strength and intensity of his emotions. Eventually, Adam discovered that his partner had been unfaithful and the relationship was terminated by him. He consequently felt overwhelming feelings of loss and abandonment and a strong desire to end his own life. Before the current study, Adam noted that that he had been feeling numb to his emotions for around 6-months and not feeling a sense of connection or satisfaction from his relationships with others. He also described feeling worthless, empty and feeling like a complete failure.

Treatment

The 16-session CAT model was agreed during assessment. This was deemed appropriate as the patient did not meet full BPD diagnostic criteria (APA, 2013). Fifteen sessions of CAT were delivered due to the time constraints of the placement duration, but did closely follow the 16-session reformulation, recognition and revision CAT framework (Ryle & Kerr, 2002). During the reformulation phase (sessions 1-4), the focus was on the collaborative development of (1) the Target Problems (TPs) for therapy and (2) of a narrative reformulation where the patient's history and key relational experiences were explored in order to identify the origins and patterns underlying the TPs. Three TPs were identified; (1) 'low self-worth/confidence', (2) 'not feeling my emotions', and (3) 'not feeling a connection with others'. Each TP was reformulated to be maintained by a target problem procedure (TPP; e.g. TP 3 was reformulated as the dilemma; "I am either completely enmeshed with others or I am completely interpersonally detached"). Each TPP was described in a reformulation letter that was presented to the patient at session 4. During the recognition phase (session 5-11) a sequential diagrammatic reformulation (SDR) was collaboratively developed that helped develop an awareness and understanding of the patient's self-states and

TPPs (Beard, Marlowe & Ryle, 1990). In the revision phase (sessions 12-14), the aim was to build 'exits' to problematic patterns through various change methods (Ryle & Kerr, 2002). In the current case, distress tolerance and emotional regulation skills were drawn from Dialectical Behaviour Therapy (DBT; Linehan, 2014) and psychoeducation on emotions was provided. Figure 1 displays the SDR with exits added during revision (marked with an asterisk). A key element of CAT is the explicit working with enactments in the therapeutic relationship (Ryle & Kellett, 2018). Common enactments included the judging-criticised pattern and swinging between feeling completely connected in the therapeutic alliance or very misunderstood.

In terms of adherence to the CAT model, the key ingredients of CAT therapy including a narrative reformulation letter, SDR and a goodbye letter exchanged by client and therapist (Ryle & Kerr, 2002) were all present. Intervention competency was assessed with the competence in CAT measure (CCAT; Bennett & Parry, 2004). One session from the intervention phase (session 10) was recorded and rated by the clinical supervisor. The total score was 25/40, which was above the competence cut-off of 20/40 (Bennett & Parry, 2004).

Ideographic Measures and Analysis Strategy

The three TPs were translated into three discrete ideographic 0-10 likert scales: item 1 measured self-worth ('0' absolutely no self-worth to '10' having confidence in my own skills), item 2 measured connection to emotions ('0' no feelings to '10' understanding my own emotional experience), and item 3 measured connection to others ('0' not feeling connected to others to '10' feeling a deep connection to others). Ideographic measures were collected by the patient on a daily basis across baseline and intervention phases. Three time-series graphs with linear baseline and intervention trend lines were constructed for visual inspection of outcome over time. Descriptive statistics of ideographic outcome data were calculated by phase. Four A/B non-overlap analyses were performed to calculate effect sizes;

percentage of non-overlapping data (PND), percentage of data points exceeding the median (PEM), percentage of all non-overlapping data (PAND) analyses (Lenz, 2013) and non-overlap of all pairs (NAP; Parker & Vannest, 2009). The Scruggs et al. (1986) guidelines were used for interpreting non-overlap results (<50% = unreliable outcome, 50-70% = questionable outcome, 70-90% = fair outcome, >90% = highly effective outcome).

Nomothetic Measures and Analysis Strategy

Two nomothetic measures were completed at pre-baseline, post-baseline, post-intervention and 6-week follow-up. *Clinical Outcome for Routine Evaluation – Outcome Measure (CORE-OM;* Barkham et al., 2001*)* is a measure of general psychological distress. The CORE-OM has been shown to have good internal reliability (coefficient α = 0.94), and test re-test reliability (0.90; Evans et al., 2002). *Inventory of Interpersonal Problems-32 (IIP-32;* Barkham et al., 1996*)* measures difficulties with interpersonal relationships. The IIP-32 has good internal reliability (coefficient α = 0.86) and test-retest reliability (0.70; Barkham et al., 1996). Nomothetic outcomes were analysed via the reliable change index (RCI: a test of whether change exceeds measurement error) and clinically significant change (CSC: the shift in outcome scores from a clinical to a non-clinical range; Jacobson et al., 1999). Connell et al. (2007) identified cut-off score for the CORE-OM to be 10 and the RCI as 6. The clinical cut-off for IIP-32 is 1.39 (Barkham et al., 1996). Due to there being no reported RCI for the IIP-32, this was calculated using the formula proposed by Evans et al. (1998). The RCI for IIP-32 was calculated to be 0.45 (total mean score).

Results

The results are divided into two sections; ideographic outcomes and then nomothetic outcomes. In terms of the time series graphs of the ideographic outcomes (Figure 2), all three measures visually displayed high variability and a trend of deterioration through the baseline

(A) phase (i.e. during the assessment phase, the patient was deteriorating on these outcomes). However, the Tau-U calculation was non-significant ($p > .05$) for each ideographic item indicating there was no statistically significant trends over the baselines that needed to be accounted for in A/B comparisons. For the intervention phase (B), both the self-worth and emotions items showed a trend towards clinical improvements. The relationships item neither improved nor deteriorated in trend through the intervention phase. Table 1 provides the descriptive statistics for ideographic outcomes during baseline and intervention phases and the results from the non-overlap analyses. Comparing the means from all three daily measures indicates an improvement from baseline to intervention phases across all measures. Standard deviations suggest that there was comparable variability across measures. PEM, PAND and NAP (in contrast to PND) indicated that CAT was fairly effective in improving self-worth. PEM indicates that the intervention was highly effective in improving connection with emotions, whereas PAND and NAP suggested it was fairly effective. In terms of interpersonal connectedness, PEM suggested that the intervention was highly effective whereas PAND and NAP suggested it was questionably effective.

Table 2 reports the nomothetic outcomes. CORE-OM scores indicate improvement from start of baseline to end of intervention. At six-week follow-up, scores indicated distress increased slightly compared to end of intervention, although this was still less than pre-baseline. Scores reliably improved across the intervention and a clinically significant change occurred. At follow-up, scores were above clinical cut-off and were not a reliable improvement compared to pre-intervention. IIP-32 scores indicate some fluctuation between pre-baseline, post-baseline and post-intervention time points. A reliable and clinically significant deterioration was observed between pre- and post-baseline and a reliable improvement between post-baseline and post-intervention. A relatively stable IIP-32 score was observed between post-intervention and six-week follow-up. Overall, the linear trend

line indicates a stable trend through the intervention. The client was below the clinical cut-off before baseline, post-intervention and follow-up.

Discussion

The primary aim of the current study was to empirically ascertain whether CAT could be effective for improving the wellbeing of a young man with anxiety and depression in the context of borderline personality traits, with specific focus on ideographic measurement of self-worth, connection to emotions and connection to others. The secondary aim was to assess the degree of synchrony between ideographic and nomothetic outcome measures. The study was conducted in a routine clinical setting which enhanced the ecological validity of the findings. All sessions were attended and so suggested an acceptable approach. The high acceptability of CAT has been attributed to the high levels of early feedback enabled by the narrative and diagrammatic reformulations (Ryle & Kerr, 2003), with a pan-study dropout rate of 15% (Hallam et al., 2020).

The nomothetic and ideographic outcomes reported compare with the previously conducted CAT SCED with BPD that also showed a partially effective intervention (Kellett et al., 2020). Given the chronicity of borderline traits and the high treatment dropout rate due to problems forming an effective therapeutic alliance (Yeomans et al., 1994), then acceptable and partially effective interventions are perhaps an index of a 'good enough' outcome. Both the Kellett et al., (2020) study and the current study show a degree of de-synchrony between ideographic and nomothetic outcomes, with both studies showing ideographic gains in the context of relative nomothetic stasis. Clinical audit and governance reporting might therefore pick up these cases as examples of a stasis outcome nomothetically, and yet the ideographic outcomes indicate that both patients made progress with the issues brought to therapy. Nomothetic and ideographic outcome should therefore be considered in equipoise; whether the personal and granular concerns and goals of the patient are addressed and met and also

whether the patient changes in clinical status and/or achieves reliable change. More studies of this kind can then also record the base rate at which de-synchrony between ideographic and nomothetic outcomes occurs. Ideographic and nomothetic measurement can work in tandem and do have complimentary characteristics.

In terms of the first hypothesis, that CAT would be effective in creating change to the TPs (measured through ideographic measures), results from non-overlap analyses were equivocal. Across all three ideographic measures, one statistical procedure (PND) suggested that the CAT was not effective, whereas three alternative procedures (PEM, PAND and NAP) suggested the CAT was effective to varying degrees (from questionably effective to highly effective). This observed inconsistency may have been due to the PND procedure using only one extreme data-point from the baseline, whereas the other procedures used (PEM, PAND and NAP) made use of all the available ideographic data. The typically high levels of emotional instability observed in BPD are likely to create patterns of instability that the PND non-overlap statistic in particular finds difficult to control for (Kellett et al., 2020).

In the case of the second and third hypotheses (i.e. CAT would facilitate a reliable and clinically significant improvements on nomothetic measures that would be maintained over follow-up time) there was little support. Psychological distress reliably reduced to community norm levels at post treatment and, although increased slightly at follow-up to above the clinical cut-off, the reliable improvement was maintained compared to baseline. Interpersonal difficulties, however, reliably deteriorated after baseline and then returned to pre-baseline levels at end of treatment. There was no reliable change in interpersonal difficulties between end of treatment and follow-up. As the patient was on a stable dose of medication (Paroxetine 40mg) and reported consistent medication adherence, pharmacotherapy was unlikely to be a confounding variable in the current case in terms of clinical change.

These findings are only partly consistent with the Hallam et al., (2020) meta-analysis which found that CAT was associated with large and significant improvements in global functioning and depression (maintained at follow-up), with interpersonal difficulties also significantly improving over follow-up time. The finding that CAT did not reduce IIP-32 scores in a reliable or clinically significant manner may have been due to the patient reporting very few interpersonal relationships in his daily life, but mainly as a consequence of interpersonal avoidance (e.g. being unemployed, having few hobbies/interests and no active friendships). This may have resulted in limited opportunities to practice and embed effective interpersonal 'exits' during and immediately following treatment. However, ideographically the patient had a better connection to others compared to baseline and so there were interpersonal gains. Again, this points to the de-synchrony between ideographic and nomothetic outcomes.

Interestingly, at session four, the patient's psychological distress reduced whereas his self-reported interpersonal difficulties reliably deteriorated compared to pre-baseline before returning to pre-baseline levels after treatment. At session four, a narrative reformulation was shared, which is the first tool used in CAT to support enhanced self-awareness and relational insight (Ryle & Kerr, 2002). Patients can experience a range of emotional responses to receiving a narrative reformulation, from a sense of making experiences/story more 'real' to reconnecting and re-experiencing painful memories (Hamill et al., 2008). The narrative reformulation may have increased awareness of interpersonal difficulties, so resulting in the increase in self-reported difficulties at session four.

In terms of the finding that there was little clinically significant improvement at follow-up compared to baseline on nomothetic measures, there are two possible reasons; (a) the intervention's therapeutic effects were primarily due to 'common factors' enabled by positive therapeutic relationship and when the sessions stopped, this effect disappeared and

(b) the previously acknowledged problems evident when using relatively 'blunt' nomothetic measures, including that these measures may not accurately reflect the type of distress the patient experiences and thus responses to standardised items may provide an incomplete/incorrect picture of progress (Hill et al., 2013).

There were a number of methodological limitations to the current study. The study only reports data from a single participant and therefore the generalisability of the results may be suspect. No formal diagnostic procedures were employed to ascertain the presence of the borderline traits. Only one session was checked in terms of competency. Although the baseline ('A') phase of the study did not involve any formal 'change methods' in terms of explicit therapy techniques, weekly assessment sessions occurred throughout this phase. It is therefore possible there was a confounding effect of the 'Hawthorne effect' (therapeutic improvement due entering into a therapeutic relationship; Feinstein et al., 2015) and this may have primed the patient to respond to the active change methods. The ideographic measures were designed at session two, rather than in the first assessment session, so any data regarding TPs before session two was unknown. Although the participant completed follow-up nomothetic measures, no follow-up ideographic data was collected. The longer-term impact of the intervention on ideographic outcomes could therefore not be therefore ascertained. The studies choice of nomothetic outcomes measures would have been improved with the addition of a borderline specific outcome measure. For example, the Standardised Assessment of Personality - Abbreviated Scale (SAPAS; Moran, Leese, Lee, Walters, Thornicroft & Mann, 2003).

A general limitation of the A/B single case design is that changes in the dependent variable (i.e. ideographic clinical outcomes) may be due to extraneous variables over the independent variable (i.e. the intervention). Therefore, the use of more experimental designs such as crossover designs (i.e. ABC), where a CAT phase is compared to for example a

cognitive therapy treatment phase, would be helpful to conduct (Barlow et al., 2009). Future A/B designs could also be usefully supplemented with the Change Interview (Elliott et al., 2001), as this semi-structured interview helps patients to explore changes experienced through therapy and finds attributions for such changes (Kellett & Hardy, 2014). Such an interview would be useful for exploring change in cases where there is marked differences between ideographic and nomothetic outcomes. Randomly sampling sessions from the reformulation, recognition and revision stages of the CAT model for competency assessment would ensure a better competency assurance process. Future research on BPD cases would also benefit from using ideographic and nomothetic measures of dissociation, due to the role played by ongoing dissociation in maintaining the state-shifting and mood instability (Ryle, 1997). Simple counts of state-shifting would be helpful. Studies could also strive to attain third-party reports of outcome, particularly related to the well acknowledged clinical risks of this patient group (Andrewes et al., 2018).

The current study demonstrated that a quasi-experimental single case design combining both nomothetic and ideographic outcome measures could be successfully used with a clinically complex case to test the effectiveness of psychotherapeutic treatment applied. The study showed that CAT was partially effective in reducing psychological distress in the context of BPD traits and an interesting divergence in ideographic and nomothetic outcomes occurred. Conclusions made from the current study should take into consideration the aforementioned limitations identified. Future studies should attempt more methodologically complex designs. At a minimum, ideographic data should be collected in the follow-up period to better index the durability of the intervention. Given that CAT is grounded on a very ideographic and personalised approach to formulation and change within its overarching and integrative theoretical framework (Ryle & Kerr, 2003), then single case methods are particularly well matched as an evaluation tool for routine CAT practice.

References

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders (5th ed.)*. Author.

Andrewes, H.E., Hulbert, C., Cotton, S.M., Betts, J., & Chanen, A.M. (2018). Patterns of non-suicidal self-injury and their relationship with suicide attempts in youth with Borderline Personality Disorder. *Archives of Suicide Research*, 22, 465-478. https://doi.org/10.1080/13811118.2017.1358226

Barkham, M., Hardy, G. E., & Startup, M. (1996). The IIP-32: A short version of the Inventory of Interpersonal Problems. *British Journal of Clinical Psychology*, *35*, 21-35. https://doi.org/10.1111/j.2044-8260.1996.tb01159.x

Barkham, M., Margison, F., Leach, C., Lucock, M., Mellor-Clark, J., Evans, C., ... & McGrath, G. (2001). Service profiling and outcomes benchmarking using the CORE-OM: Toward practice-based evidence in the psychological therapies. *Journal of Consulting and Clinical Psychology, 69,* 184-196. https://doi.org/10.1037//0022-006x.69.2.184

Barlow, D.H., Nock, M.K. & Hersen, M. (2009). *Single case experimental designs* (3rd ed.). Pearson Press.

Bateman, A. W., & Fonagy, P. (2000). Effectiveness of psychotherapeutic treatment of personality disorder. *British Journal of Psychiatry*, *177*, 138-143. https://doi.org/10.1037//0022-006x.69.2.184

Beard, H., Marlowe, M., & Ryle, A. (1990). The management and treatment of personality-disordered patients: The use of sequential diagrammatic reformulation. *The British Journal of Psychiatry,156*, 541-545. https://doi.org/10.1192/bjp.156.4.541

Bennett, D., & Parry, G. (2004). A measure of psychotherapeutic competence derived from cognitive analytic therapy. *Psychotherapy Research, 14*, 176-192. https://doi.org/10.1093/ptr/kph016

Bennett, D., Parry, G., & Ryle, A. (2006). Resolving threats to the therapeutic alliance in cognitive analytic therapy of borderline personality disorder: A task analysis. *Psychology and Psychotherapy: Theory, Research and Practice*, *79(3)*, 395-418. https://doi.org/10.1348/147608305X58355

Brockman, B., Poynton, A., Ryle, A., & Watson, J. P. (1987). Effectiveness of time-limited therapy carried out by trainees; comparison of two methods. *British Journal of Psychiatry*, *151(5)*, 602-610. https://doi.org/10.1192/bjp.151.5.602

Chanen, A.M., Jackson, H.J., McCutcheon, L.K., Jovev, M., Dudgeon, P., Yuen, H. P., ... & Clarkson, V. (2008). Early intervention for adolescents with borderline personality disorder using cognitive analytic therapy: randomised controlled trial. *British Journal of Psychiatry*, *193(6),* 477-484. https://doi.org/10.1192/bjp.bp.107.048934

Connell, J., Barkham, M., Stiles, W. B., Twigg, E., Singleton, N., Evans, O., & Miles, J. N. (2007). Distribution of CORE–OM scores in a general population, clinical cut-off points and comparison with the CIS–R. *British Journal of Psychiatry, 190,* 69-74. https://doi.org/10.1192/bjp.bp.105.017657

Cooper, M., Turpin, G., Bucks, R., & Kent, G. (2005). *Good Practice Guidelines for the Conduct of Psychological Research within the NHS.* Division of Clinical Psychology, Research Ethics Practice Working Party of the Training Strategy Group, The British Psychological Society British Psychological Society. https://www.simplypsychology.org/nhs.pdf

Daly, A.M., Llewelyn, S., McDougall, E., & Chanen, A.M. (2010). Rupture resolution in cognitive analytic therapy for adolescents with borderline personality disorder. *Psychology and Psychotherapy: Theory, Research and Practice*, 83(3), 273-288. https://doi.org/10.1348/147608309X481036

Elliott, R., Slatick, E., & Urman, M. (2001). Qualitative change process research on psychotherapy: Alternative strategies. In J. Frommer & D. L. Rennie (Eds.), *Qualitative psychotherapy research: Methods and methodology* (pp. 69–111). Pabst Science Publishers.

Evans, C., Connell, J., Barkham, M., Margison, F., McGrath, G., Mellor-Clark, J., & Audin, K. (2002). Towards a standardised brief outcome measure: Psychometric properties and utility of the CORE–OM. *The British Journal of Psychiatry*, *180*, 51-60. https://doi.org/10.1192/bjp.180.1.51

Evans, C., Margison, F., & Barkham, M. (1998). The contribution of reliable and clinically significant change methods to evidence-based mental health. *Evidence-Based Mental Health,* 1(3), 70-72. http://dx.doi.org/10.1136/ebmh.1.3.70

Feinstein, R., Heiman, N., & Yager, J. (2015). Common factors affecting psychotherapy outcomes: Some implications for teaching psychotherapy. *Journal of Psychiatric Practice, 21*(3), 180-189. https://doi.org/10.1097/PRA.0000000000000064

Few, L. R., Miller, J. D., Rothbaum, A. O., Meller, S., Maples, J., Terry, D. P., ... & MacKillop, J. (2013). Examination of the Section III DSM-5 diagnostic system for personality disorders in an outpatient clinical sample. *Journal of Abnormal Psychology*, *122(4)*, 1057-1069. https://doi.org/10.1037/a0034878

Guy, A., Loewenthal, D., Thomas, R., & Stephenson, S. (2012). Scrutinising NICE: The impact of the National Institute for Health and Clinical Excellence Guidelines on the provision of counselling and psychotherapy in primary care in the UK. *Psychodynamic Practice*, *18*, 25-50. https://doi.org/10.1080/14753634.2012.640153

Hallam, C., Simmonds-Buckley, M., Kellett, S., Greenhill, B., & Jones, A. (2020). The acceptability, effectiveness, and durability of cognitive analytic therapy: Systematic

review and meta-analysis. *Psychology and Psychotherapy: Theory, Research and Practice*, *94,* 8-35. https://doi.org/10.1111/papt.12286

Hamill, M., Ried, M., & Reynolds, S. (2008). Letters in cognitive analytic therapy: The patient's experience. *Psychotherapy Research*, *18(5)*, 573-583. https://doi.org/10.1080/10503300802074505

Hill, C. E., Chui, H., & Baumann, E. (2013). Revisiting and reenvisioning the outcome problem in psychotherapy: An argument to include individualized and qualitative measurement. *Psychotherapy, 50*(1), 68-76. https://doi.org/10.1037/a0030571

Jacobson, N.S., Roberts, L.J., Berns, S.B., & McGlinchey, J.B. (1999). Methods for defining and determining the clinical significance of treatment effects: description, application, and alternatives. *Journal of Consulting and Clinical Psychology*, *67*, 300-307. https://doi.org/10.1037//0022-006x.67.3.300

Kellett, S., Gausden, J., & Gaskell, C. (2020). The effectiveness of cognitive analytic therapy for borderline personality disorder: Utilizing a withdrawal experimental design to improve sensitivity to abandonment. *Psychology and Psychotherapy: Theory, Research and Practice, 94,* 96-119. https://doi.org/10.1111/papt.12278

Kellett, S., & Hardy, G. (2014). Treatment of paranoid personality disorder with cognitive analytic therapy: A mixed methods single case experimental design. *Clinical Psychology & Psychotherapy, 21*, 452-464. https://doi.org/10.1002/cpp.1845

Kellett, S., Stockton, C., Marshall, H., Hall, J., Jennings, C., & Delgadillo, J. (2018). Efficacy of narrative reformulation during cognitive analytic therapy for depression: Randomized dismantling trial. *Journal of Affective Disorders*, *239*, 37-47. https://doi.org/10.1016/j.jad.2018.05.070

Kellett, S., Bennett, D., Ryle, T., & Thake, A. (2013). Cognitive analytic therapy for borderline personality disorder: therapist competence and therapeutic effectiveness in routine

practice. *Clinical Psychology & Psychotherapy, 20*, 216-225. https://doi.org/10.1002/cpp.796

Kellett, S. Alhadeff, L., Gaskel, C., & Simmonds-Buckley, M. (2021). Treatment of bipolar disorder with cognitive analytic therapy; an ABAB with follow-up and co-production design. *Psychology and Psychotherapy; Theory, Research and Practice* (submitted).

Lamb, N., Sibbald, S., & Stirzaker, A. (2018). Shining lights in dark corners of people's lives: Reaching consensus for people with complex mental health difficulties who are given a diagnosis of personality disorder. *Criminal Behaviour and Mental Health*, *28(1)*, 1-4. https://doi.org/10.1002/cbm.2068

Lenz, A. S. (2013). Calculating effect size in single-case research: A comparison of nonoverlap methods. *Measurement and Evaluation in Counselling and Development*, *46*, 64-73. https://doi.org/10.1177/0748175612456401

Linehan, M. (2014). *DBT: Skills training manual.* Guilford Press.

McMillan, D. & Morley, S. (2010). Single case quantitative methods for practice-based evidence. In M. Barkham, G.E. Hardy & J. Mellor-Clark (Eds.), *Developing and delivering practice-based evidence* (pp. 109-138). John Wiley & Sons Ltd.

Moran, P., Leese, M., Lee, T., Walters, P., Thornicroft, G., & Mann A. (2003). Standardised Assessment of Personality - Abbreviated Scale (SAPAS): preliminary validation of a brief screen for personality disorder. *British Journal of Psychiatry, 183,* 228–232.

Morley, S. (2018). *Single case methods in clinical psychology: a practical guide.* Routledge.

National Institute for Health and Clinical Excellence. (2009). Borderline personality disorder: recognition and management. NICE Guideline (CG78). https://www.nice.org.uk/guidance/cg78

Parker, R. I., & Vannest, K. (2009). An improved effect size for single-case research: Nonoverlap of all pairs. *Behaviour Therapy*, *40*, 357-367. https://doi.org/10.1016/j.beth.2008.10.006

Pollock, P. H., Broadbent, M., Clarke, S., Dorrian, A., & Ryle, A. (2001). The Personality Structure Questionnaire (PSQ): A measure of the multiple self-states model of identity disturbance in cognitive analytic therapy. *Clinical Psychology & Psychotherapy: An International Journal of Theory & Practice, 8(1)*, 59-72. https://doi.org/10.1002/cpp.250

Ryle, A. (1997). The structure and development of borderline personality disorder: a proposed model. *British Journal of Psychiatry*, *170(1)*, 82-87. https://doi.org/10.1192/bjp.170.1.82

Ryle, A., & Golynkina, K. (2000). Effectiveness of time-limited cognitive analytic therapy of borderline personality disorder: Factors associated with outcome. *British Journal of Medical Psychology*, *73(2)*, 197-210. https://doi.org/10.1348/000711200160426

Ryle, A., & Kellett, S. (2018). Cognitive analytic therapy. In W. J. Livesley & R. Larstone (Eds.), *Handbook of personality disorders: Theory, research, and treatment* (pp. 489–511). The Guilford Press.

Ryle, A., & Kerr, I. B. (2002). *Introducing cognitive analytic therapy: principles and practice*. John Wiley & Sons.

Scruggs, T. E., Mastropieri, M. A., Cook, S. B., & Escobar, C. (1986). Early intervention for children with conduct disorders: A quantitative synthesis of single-subject research. *Behavioral Disorders*, *11*, 260-271. https://doi.org/10.1177/019874298601100408

Shaw, C., & Proctor, G. (2005). Women at the margins: A critique of the diagnosis of borderline personality disorder. *Feminism & Psychology*, *15*, 483-490. https://doi.org/10.1177/0959-353505057620

Spence, C., Kellett, S., Totterdell, P., & Parry, G. (2019). Can cognitive analytic therapy treat hoarding disorder? An adjudicated hermeneutic single-case efficacy design evaluation. *Clinical Psychology & Psychotherapy*, *26,* 673-683. https://doi.org/10.1002/cpp.2390

Wakefield, S., Degadillo, J., Kellett, S., White, J., & Hepple, J. (2020). The effectiveness of brief cognitive analytic therapy for anxiety and depression: A quasi-experimental case-control study. *British Journal of Clinical Psychology, 60(2),* 194-211. https://doi.org/10.1111/bjc.12278

Wildgoose, A., Clarke, S., & Waller, G. (2001). Treating personality fragmentation and dissociation in borderline personality disorder: a pilot study of the impact of cognitive analytic therapy. *British Journal of Medical Psychology*, *74(1)*, 47-55. https://doi.org/10.1348/000711201160795

Yeomans, F. E., Gutfreund, J., Selzer, M. A., Clarkin, J. F., Hull, J. W., & Smith, T. E. (1994). Factors related to drop-outs by borderline patients: Treatment contract and therapeutic alliance. *The Journal of Psychotherapy Practice and Research*, *3(1),* 16–24.

Zanarini, M. C., Frankenburg, F. R., Vujanovic, A. A., Hennen, J., Reich, D. B., & Silk, K. R. (2004). Axis II comorbidity of borderline personality disorder: description of 6-year course and prediction to time-to-remission. *Acta Psychiatrica Scandinavica*, *110(6)*, 416-420. https://doi.org/10.1111/j.1600-0447.2004.00362.x

Tables

Table 1

Descriptive statistics and non-overlapping analyses for the ideographic outcomes

Daily Measure	Baseline mean (SD)	Intervention mean (SD)	PND	PEM	PAND	NAP
Self-Worth	0.76 (0.89)	2.19 (0.81)	6.49%	84.42%	82.14%	87.14%
Ability to Connect with Emotions	1.14 (1.42)	2.92 (0.96)	0.00%	96.10%	77.04%	84.29%
Interpersonal Connection	1.10 (1.34)	1.74 (1.09)	3.90%	100%	59.69%	67.35%

Notes. SD = Standard Deviation, PND = percentage of non-overlapping data, PEM = percentage of data points exceeding the median, PAND = percentage of all non-overlapping data, NAP = non-overlap of all pairs. <50% = unreliable outcome, 50-70% = questionable, 70-90% = fair, >90% = highly effective.

ability to connect with emotions and interpersonal connection

Table 2

Baseline, intervention and follow-up nomothetic outcomes

Measure	Pre-Baseline	Post-Baseline	Post-Intervention	Follow-up	Clinical cut-off	Clinical mean (SD)	Community mean (SD)	Reliable Change Index (RCI)	RCSC from baseline to follow-up?
CORE-OM (Clinical Score)	16	13	9	11	10	18.3 (7.1)	4.8 (4.3)	6	No[a]
Wellbeing	1.5	1.75	1.25	1					
Problems	1.92	1.17	0.92	1.17					
Functioning	2.17	2	1.33	1.58					
Risk	0.17	0	0	0					
IIP-32 (Total Mean Score)	1.31	1.81	1.31	1.40	1.39	1.51	0.98	0.45	No

RCSC = Reliable and Clinically Significant Change.

[a] Reliable and clinically significant change was met from baseline to end of intervention though the patient was above clinical cut-off at follow-up.

Clinical and community norms were taken from the following papers: Connell et al. (2007) for CORE-OM; Barkham et al. (1996) for IIP-32.

Figure Legends

Figure 1

Sequential Diagrammatic Reformulation

Figure 2

Time-series graphs of daily ideographic measures