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Abstract

Objective. The evidence base for the treatment of morbid jealousy with integrative therapies is thin. This study explored the efficacy of cognitive analytic therapy (CAT). **Design**. An adjudicated hermeneutic single case efficacy design evaluated the cognitive analytic treatment of a patient meeting diagnostic criteria for obsessive morbid jealousy. **Method**. A rich case record was developed using a matrix of nomothetic and ideographic quantitative and qualitative outcomes. This record was then debated by sceptic and affirmative research teams. Experienced psychotherapy researchers acted as judges, assessed the original case record and heard the affirmative versus sceptic debate. Judges pronounced an opinion regarding the efficacy of the therapy. **Results**. The efficacy of CAT was supported by all three judges. Each ruled that change had occurred due to the action of the therapy, beyond any level of reasonable doubt. **Conclusions**. This research demonstrates the potential usefulness of CAT in treating morbid jealousy and suggests that CAT is conceptually well suited. Suggestions for future clinical and research directions are provided.

Practitioner points

- The relational approach of CAT makes it a suitable therapy for morbid jealousy.

- The narrative reformulation component of CAT appears to facilitate early change in chronic jealousy patterns.

- It is helpful for therapists during sessions to use CAT theory to diagrammatically spell out the patterns maintaining jealousy.

Introduction

The early Latin and Greek definitions of jealousy defined the presence of fervour, ardour and a love to emulate (Ortigue & Bianchi-Demicheli, 2011) and jealousy can be experienced at times in relation to the possessions that another person owns (Belk, 1984). More contemporary definitions focus on the romantic interpersonal nature of jealousy and share common elements of the description of a distinct and negative emotional state reactive to the loss (or fear of loss) of a valued relationship, because of the actions of a real (or imagined) rival for a partner's affections (Rydell & Bringle, 2007). In 1910, Carl Jaspers wrote the first ground breaking clinical description of morbid jealousy (Hoenig, 1965). Morbid jealousy concerns intra and interpersonal elements of jealousy-fuelled anxiety and paranoia focussed on partner infidelity that create dependency, frequent interrogation, being generally untrusting, behaviourally checking for evidence of infidelity and also the presence of rage-states when suspicions are aroused (Kingham & Gordon, 2004).

Morbid jealousy has been clinically separated into either delusional or obsessive subtypes (Cobb, 1979; Shepherd, 1961). Delusional morbid jealousy (DMJ) involves the behavioural expression of rigid and persecutory beliefs concerning a partner's sexual infidelity, most often located in psychosis (Kingham & Gordon, 2004; Mullen, 1991) or stroke (Ortigue & Bianchi-Demicheli, 2011). Obsessive morbid jealousy (OMJ) has been likened to obsessive-compulsive disorder, due to the presence of jealous obsessive intrusions creating paranoia/anxiety and associated compulsive safety-seeking behaviours (Cobb & Marks, 1979). Examples of jealous compulsions are checking a partner's underwear for signs of sexual behaviour, controlling behaviours, interrogating and checking of mobile phones/social media. OMJ patients tend to have insight into their irrational jealousy (Kingham & Gordon, 2004) and often experience associated heightened shame (feelings of self-humiliation) and guilt (awareness of the impact of jealousy on relationships).

A wide variety of theoretical perspectives have been posited in the treatment literature concerning OMJ and to some extent theory dwarfs available sound outcome evidence (Ortigue & Bianchi-Demicheli, 2011). Psychodynamic theory considers repressed sexuality (Freud, 1922), oedipal rivalry (Klein, 1957) or insecure attachment styles (Dutton, et al. 1994) as important underlying and predisposing factors. Cognitive theorists alternatively maintain OMJ is characterized by core beliefs regarding personal inadequacy and misinterpretation of events activating faulty assumptions (Tarrier et al. 1990). Behavioural systems theorists maintain jealousy is the emotional expression of interacting and circular interpersonal processes which are played out between partners (Crowe, 1995; Margolin, 1981; Teismann, 1979).

Given the often devastating psychoemotional impact of OMJ (Cobb, 1979) creating associated risks of suicide (Mooney, 1965; Shepherd, 1961), domestic violence (Dell, 1984; Mullen, 1990; Mullen & Maack, 1985) and substance misuse (Tarrier et al, 1990; Vauhkonen, 1968), the thorough evaluation of interventions for OMJ are clearly warranted. However, the evidence base regarding psychotherapy for OMJ is currently limited, with studies tending to be practice-based and uncontrolled. For example, early studies demonstrated the effectiveness of behavioural therapy (Cobb & Marks, 1979), cognitive therapy (Bishay, Peterson & Tarrier, 1989), cognitive behavioural therapy (Marks & De Silva, 1991; Dolan & Bishay, 1996a) and eye movement desensitization and reprocessing (EMDR; Keenan & Farrell 2000). More recently, integrative therapies have been shown to be effective (Kellett & Totterdell, 2013, Lopez, 2003). Only one outcome study has used a control group for comparison purposes; Dolan & Bishay (1996b) allocated to a waitlist control condition, to show that CBT was associated with significant reductions in jealousy. Outcome studies of psychological interventions for OMJ have dwindled in recent years.

Whilst considered the methodological 'gold standard' of clinical research, randomized controlled trials (RCTs) of OMJ treatment appear difficult to complete due to relative rarity of cases presenting to services (Kingham & Gordon, 2004). RCTs have also been criticized for compromising ecological validity through prioritizing high methodological control over confounding factors (Barker, Pistrang & Elliott, 2002). Given these recruitment and methodological dilemmas, use of single case experimental design (SCED) offers an alternative, ecologically valid and pragmatic tool for evaluating the effectiveness of OMJ treatments offered in routine service settings. SCED particularly makes a valuable contribution, when the evidence base for a treatment is in its empirical infancy (Barlow, Nock & Hersen, 2008).

However, demonstrating therapeutic *efficacy* with SCED is a challenge, as adaptations to the method are required to create evidence that the treatment was directly responsible for change (Bohart & Boyd, 1997; as cited in Elliot et al. 2009, Elliott, 2002). There are examples of randomized single case studies of pharmacotherapy, in which a therapeutic procedure is compared with placebo or where two treatments are compared by administering the two conditions in a predetermined random order (Backman & Harris, 1999). A condition of such studies is that neither the participant nor the clinician is aware of the treatment condition during any given period of time. Such designs are impossible with psychotherapy. In response, hermeneutic single case efficacy design (HSCED) has been developed as a paradigm within which efficacy can be demonstrated at the level of the individual patient receiving psychotherapy (Elliott, 2002; Elliott et al. 2009).

HSCED is a practical reasoning system and critical-reflective approach, which aims to identify and evaluate the effective elements of a model of therapy that directly create change (Elliott, 2002, Elliot et al. 2009). HSCED involves the development of a rich case record of a therapy, which is then systematically evaluated to develop skeptical and affirmative

interpretations of therapeutic outcome. Demonstration of efficacy in HSCED requires three or more pieces of supporting evidence that link the therapy to positive clinical change; (a) retrospective attributions, (b) process-outcome mapping, (c) within therapy process-outcome correlation, (d) changes in stable problems or (e) event-shift sequences (Elliott 2002; Elliott et al. 2009). The skeptical position argues that change was absent, trivial or the result of statistical, relational and/or research and measurement artefacts. HSCED has been recently enhanced to include an 'adjudicated HSCED' approach, which mimics the legalistic evaluation framework, in that expert psychotherapy researchers as 'judges' to determine clinical outcome (Elliott et al. 2009). The rationale for adding an adjudication process to HSCED, is that adjudication adds another layer to the systematic judgement process in the consideration of efficacy at the individual case level (Stephen & Elliott, 2009). In this process, decisions regarding arbitration are based on the legal criteria of 'beyond reasonable doubt' when looking across multiple sources and types of outcome evidence (Elliot et al. 2009). A recent example an adjudicated HSCED is Benelli et al.'s (2017) evaluation of the transactional analysis treatment of depression.

The current study conducted an adjudicated HSCED evaluation of cognitive analytic therapy (CAT) for OMJ. The rationale for the use of CAT is that because OMJ contains strong relational elements (e.g. fear of abandonment; Kingham & Gordon, 2004), then a relational therapy would be able to formulate such patterns and also use theory to analyse when enactments of associated relational dynamics occurred within the therapeutic relationship (e.g. experience of abandonment on termination of therapy). No adjudicated HSCED evaluations of CAT for any clinical diagnosis have previously been conducted and so the current study is clinically and methodologically innovative. Whilst there is SCED evidence that CAT can be an effective approach for OMJ (Kellett & Totterdell, 2013), the current study sought to build on that empirical foundation through the use of an adjudicated

HSCED process. The aims of this study were to assess the efficacy of a 16-session CAT treatment for OMJ and identify the mechanisms creating therapeutic change.

Method

Ethics, participant and therapist

Approval from ethics and information governance committees was provided to analyse the data and consent was sought from the patient (ref: 12/YH/0310). The therapist was a male Consultant Clinical Psychologist and accredited CAT therapist and supervisor, with eleven years of post-qualification experience. A 38-year-old female participant was recruited following a screening for a 16-session CAT intervention. The assessment of the client followed the Kellett, Boyden & Green (2012) assessment procedures and highlighted OMJ being the primary diagnosis. The participant reported seeking help due to a deterioration in her chronic jealousy caused by the discovery of a brief, 6-week, affair conducted by her husband. She reported (even prior to the affair) frequent intense anxiety around her husband's fidelity and was now extremely anxious about the likelihood of him meeting another woman. She noted that she had been excessively jealous across all her adult relationships and had strong dependent traits in relationships. The participant described getting 'locked into' jealous states of mind and losing all perspective. The participant experienced high frequency vivid and intrusive images of the husband having sex with other women and also obsessive intrusive thoughts centring on a theme of infidelity. She also reported the presence of the compulsions of repeated reassurance seeking concerning fidelity, checking, presentism in the relationship and frequent interrogation of her partner. The participant reported always having low self-esteem and poor body image and that the affair had triggered a depressive episode. The participant reported engaging in prolonged

rumination about the circumstances surrounding the affair. There was no history of self-harm. A course of SSRI medication was initiated prior to the commencement of therapy and was unchanged throughout all study phases. No psychotherapy of any model had been previously attempted. Childhood experiences included modelling of over-dependency on her father by her mother (who experienced severe mental health difficulties). The participant reported a chronic sense of abandonment and rejection from her childhood years.

Treatment

Treatment was delivered under routine care conditions in the National Health Service (NHS) in the UK. CAT is a relational, collaborative and time-limited (8, 16 or 24 session) psychotherapy originally designed to meet the organizational demands of public mental health services (Ryle & Kerr, 2002). CAT integrates cognitive (via detailing procedural sequences) and analytic (via reciprocal roles) methods and theories to enable a structured and containing treatment approach (Ryle & Kellett, 2017). CAT therefore emphasizes collaboration between therapist and patient during exploration, description and analysis of how past (often childhood) childhood experiences contribute to the development of currently restrictive or harmful relationship roles and associated patterns. As these reciprocal roles act as templates for relationships, then they also occur within the therapeutic relationship, where 'enactments' are frequently analysed as a key change method (Bennett & Parry, 2004).

The treatment methods of CAT have been clearly established and delineated (Ryle & Kerr, 2002) and in complex cases are based on the multiple self-states model (MSSM; Ryle, 1997). The MSSM defines the operation of recognizable, discrete self-states, each with a characteristic affect, sense of self and mode of relating to others that a patient can alternate rapidly between. CAT in the current study also reflected the established three-phase approach (Ryle & Kerr, 2002): (1) a 'reformulation' phase of extended assessment leading to a narrative reformulation of the participant's morbid jealousy, (2) a 'recognition' phase to

encourage enhanced self-awareness via production of a sequential diagrammatic reformulation (SDR) and associated self-monitoring of patterns, roles and states and (3) a 'revision' stage focused on changing jealous patterns and roles via identifying 'exits' on the SDR, followed by 'goodbye letters' written and exchanged by therapist and patient at the final session.

The narrative reformulation was therefore a statement of the OMJ using CAT terms such as roles and procedures and the SDR was a diagrammatic representation of the same roles and procedures. The SDR for the participant contained the following self-states; jealousy (using an abandoning to abandoned reciprocal role), clinginess (using a rejecting to rejected reciprocal role) and dependency (summarized by an enmeshed Venn-diagram). These were all connected by procedural sequences, to emphasize the means by which the participant shifted between states or alternated between the poles of reciprocal roles. For example, feeling abandoned the participant's aim would be to elicit 'perfect love' which would crumble due to jealous intrusions forcing the participant to seek reassurance, which drove her partner away and so she experienced him as distant and therefore potentially abandoning. The final revision phase entailed five change methods: (1) analysis of reciprocal role enactments in the therapeutic relationship, (2) engaging in alliance rupture-repair sequences, (3) exposure to jealous obsessive thoughts and images, with response prevention to associated compulsions, (4) emphasizing appropriate independence in relationships and (5) development of a more effective model of self-care. Consistent with CAT practice, changes were visually labelled as 'exits' on the SDR (Ryle & Kerr, 2002).

Research teams

Trainee clinical psychologists were recruited to act as affirmative (AT, *N*=3) and sceptic research teams (ST, *N*=3). Team members had to meet the following criteria: successful progression into the final year of clinical psychology training, experience of completing a

SCED in their own practice, experience of research beyond undergraduate level, skills in critical and reflective evaluation and openness to considering either positive or negative aspects of an integrative therapy.

Judges

The team of 'judges' (*N*=3) was specifically selected to ensure representation of divergent theoretical orientations. In practice, this meant CAT, CBT and psychodynamic psychotherapy. Judges had to meet the following criteria: recognized expertise in specific therapeutic modality, academic prominence as a psychotherapy researcher and an expressed appreciation of the utility of a range of therapeutic models.

Design and materials

The participant completed a range of nomothetic and ideographic outcome measures. The four nomothetic psychometric measures were completed at assessment, termination and follow-up and the six ideographic measures were completed via a daily diary throughout the phases of the study (baseline, treatment and follow-up). Ideographic measures therefore tracked jealousy across the baseline ('A'), treatment ('B') and follow-up phases to create an A/B with follow-up SCED. Baseline (A) consisted of purely assessment activity (3 sessions) and this data was used as a comparator for outcomes during active treatment (B; 13 sessions) and follow up (1 session; 11-weeks post treatment). Treatment ('B') was initiated by means of delivery of the narrative reformulation in session 4, to be consistent with the previous CAT jealousy SCED (Kellett & Totterdell, 2013).

Nomothetic quantitative measures and associated analysis strategy

Prestwich Jealousy Questionnaire (PJQ). The PJQ is a 60-item measure of cognitive, affective and behavioural aspects of jealousy (Beckett, Tarrier, Intili, & Beech, 1992; as cited in Intili & Tarrier, 1998). A score of 50 indicates clinically significant levels of jealousy (Intili & Tarrier, 1998). Overall PSQ scores are classified as no jealousy (0-33), mild

jealousy (34-49), moderate jealousy (50-99), severe jealousy, (100-132) and very severe jealousy (>133). *Beck Depression Inventory-II (BDI-II).* The BDI-II is a 21-item measure of depression with sound reliability and validity (Beck, Steer, Ball and Ranieri, 1996; Beck, Steer and Brown, 1996). BDI-II scores are classified (Beck, Steer & Brown, 1996) as: minimal depression (0-13), mild depression (14-19), moderate depression (20-28) and severe depression (29-63). *Inventory of Interpersonal Problems-32 (IIP-32).* The IIP-32 measures interpersonal difficulties and has been subject to confirmatory factor analysis (Hughes & Barkham, 2005). The IIP-32 has high internal consistency and test-retest reliability, with a clinical cut-off of 1.50 for the full scale (Barkham, Hardy & Startup, 1996). *Brief Symptom Inventory (BSI).* The BSI (Derogatis, 1993) is a 53-item measure of psychological distress across nine symptom dimensions and three composite scores (global severity index, positive symptom total and positive symptom distress). The BSI has sound psychometric properties when used with psychiatric disorders and caseness is indicated by a global severity index t-score of 63 (Derogatis & Melisaratos, 1983).

Nomothetic outcomes were evaluated in terms of both reliable and clinically significant change. The reliability of change was assessed using the reliable change index (RCI, Jacobson & Truax, 1991). The RCI indexes the degree of change necessary in an outcome score for that change to be considered reliable, rather than a reflection of possible measurement error. Clinically significant change (CSC, Jacobson & Truax, 1991) occurs when outcomes shift in classification from 'caseness' to 'non-caseness'. In practice-based research, simultaneous reliable and clinically significant change is considered as evidence of 'recovery.' Unfortunately, it was not possible to complete RCI analysis for the PJQ, due to lack of necessary psychometric properties.

Ideographic quantitative measures and associated analysis strategy

Ideographic measures were collected continuously over $N = 193$ days and the diary was collaboratively designed in the first session. Wording of measures and scale anchors are found in Table 1. Ideographic outcomes were graphed according to study phase with associated statistical comparisons between the phases. The degree of serial dependency within each phase was evaluated with autocorrelation analysis (Huitema & McKean, 1991) and differences between phases assessed via analysis of covariance (ANCOVA). This involved the creation of a variable using the lag-order coefficient which most strongly correlated with the time series. For all ideographic measures, autocorrelation was strongest for the first-order lag, which was then used as a covariate in the ANCOVA to control for serial dependency (Totterdell & Kellett, 2008). The ANCOVA had a single factor for stage of treatment which had three levels (baseline, treatment and follow-up). For each ideographic measure, trend lines for each phase of the study were fitted to the time series outcome graph. Post-hoc pairwise comparisons were also used to test which phases were significantly different from each other and Bonferroni corrections were used to control the familywise error rate and reduce the likelihood of Type-1 errors.

Where significant overall treatment effects were found, then effect sizes were then calculated using non-regression based non-overlap metrics, to evaluate the magnitude of the intervention effect (Horner et al, 2005). Specifically, data from the treatment phase and the follow-up period were combined and compared to baseline data using the percentage of data points exceeding the median (PEM; Ma, 2006). Estimates of effect size based on PEM were interpreted as <70% 'questionable/ineffective treatment', 70-90% 'moderately effective treatment' and >90 % 'highly effective treatment' (Wendt, 2009).

Qualitative evidence

The Change Interview (CI) is a semi-structured interview protocol used to explore the participant's experience of therapy, identify changes (if any) which have occurred and consider what may have facilitated or created change (if change occurred). During the CI, ratings (on a 1-5 Likert scale) are made of how expected changes were, how likely changes would have been without therapy and how important changes were. The CI was conducted following the completion of the follow-up period. As part of the CI, the participant also completed the Helpful Aspects of Therapy (HAT; Llewelyn, 1988). The HAT is a 7-iem self-report instrument that gathers information about the patient's experience of helpful and hindering events during psychotherapy. The HAT asks participants to name and rate specific aspects of a psychotherapy session (or events outside of psychotherapy session) that were helpful (1-9 Likert rating) or hindering (1-9 Likert rating). The HAT is typically used post-session, but in the current study the wording of the HAT was altered to reflect the entire therapy.

Procedure

The remaining HSCED procedure was conducted in three phases:

Phase 1: Development of the rich case record. This consisted of nomothetic and ideographic outcomes (graphed and tabulated with associated statistical analyses), CI transcript, HAT form, therapist anonymized clinic notes and narrative/diagrammatic formulations. The ideographic diary also contained space for writing a qualitative description of that particular day and in the rich case record qualitative entries ($N =137$) were grouped according to study phase. Qualitative diary entries were subject to content analysis (Krippendorf, 2014) to determine the number of references made to jealousy, specific and general aspects of therapy and references to events outside therapy. For the content analysis, each diary entry constituted a measurement unit and was coded for the presence or absence of

references to the specified criteria (see Table 4). The coding criteria created reflected the HSCED method of holding a skeptical position that change may be caused by factors beyond therapy. Units were coded independently by two coders (trainee clinical psychologists not part of the sceptic or affirmative teams), after practicing with 10 randomly selected units from the diary. The two sets of codes were compared, resulting in a 71% agreement rate.

Phase 2: Development of briefs and rebuttals. Affirmative and sceptic teams were presented with the rich case record. Teams were asked to explore the case record and seek out information which supported respective positions. Such information was then collated in the form of comprehensive 'brief.' Once both sceptic and affirmative briefs were developed, each team met again to review the opposing teams brief in order to generate a 'rebuttal' statement.

Phase 3: Adjudication. Judges were provided with the original rich case record and copies of the AT and ST's briefs and rebuttals. Judges were requested to carefully review and decide on the most comprehensive and convincing argument. Judges were asked to write a review explaining their decision on which brief they supported and the key pieces of information influencing this process.

Results

Ideographic quantitative outcomes

Means on the ideographic jealousy measures by study phase with an associated comparison of phases (ANCOVA) are reported in Table 1. Exact p values for main effects, post hoc study phase comparisons and effect sizes are reported in Table 2.

Insert tables 1 and 2 here please

There was a significant effect of treatment phase on jealousy and a moderately effective intervention (see Figure 1). There was no effect of treatment phase on compulsive observation and an ineffective treatment (see Figure 2). There was a significant effect of treatment phase on state-shifting and a moderately effective intervention (see Figure 3). There was a significant effect of treatment phase on anxiety and a moderately effective intervention (see Figure 4). There was a significant effect of treatment phase on self-esteem and a moderately effective intervention (see figure 5). There was a significant effect of phase on being in balance and a highly effective intervention (see Figure 6).

Insert figures 1-6 here please

Nomothetic quantitative outcomes

Nomothetic outcomes are reported in Table 3 and Table 4 reports an analysis of the subscales of the IIP-32. Reliable and clinically significant change occurred between assessment and termination in terms of depression (BDI-II) and global psychological distress (BSI-GSI). No further reliable improvement (nor deterioration) in depression or global distress occurred between termination and follow-up. Scores on the PJQ showed a reduction in jealousy from 'severe' at assessment, to 'moderate' at termination and 'mild' at follow-up. Full IIP-32 scores showed little change (Table 3), whereas analysis of the subscales (Table 4) showed reliable pre-post reductions in dependency, but a reliable increase in finding it difficult to be sociable between end of treatment and follow-up.

Insert Table 3 and 4 here please

Qualitative content analysis of the diary

Frequencies of diary entries are reported in Table 5. The content analysis suggests that jealousy was fixed during the baseline and then more variable (i.e. improving and also deteriorating) during treatment. Therapy was helpful on an ongoing basis and external events exerted a negative influence.

Insert table 5 here please

Change interview and HAT

The change interview results are summarized in Table 6. The participant reported almost all changes as extremely important, unexpected and also unlikely without therapy. The most unexpected changes were being more mindful (unlikely without therapy), more independent within the marriage and less obsessed about the affair (both unlikely without therapy). Some changes had been expected prior to therapy such as less obsessing about weight. Nothing had changed for the worse, although there had been a hope for greater self-confidence and also to completely extinguish the jealous intrusive thoughts. Change was attributed to therapy and several technical aspects of CAT were rated as extremely helpful in bringing about change (e.g. reformulation and goodbye letters and creation and use of the diagrammatic reformulation). The aspects of the HAT scored as very helpful were as follows: completing the diary, the therapist framing the problem as like OCD, learning to prevent rumination, acceptance of the husband's behaviour, recognizing that change was possible with regards to jealousy, recognizing the influence of childhood factors, narrative reformulation and goodbye letters, the therapist drawing out patterns during sessions and finally actively using the SDR to recognize these patterns between sessions. No aspects of CAT were reported to have been hindering.

Insert table 6 here please

Development of briefs and rebuttals

Affirmative brief. The affirmative team (AT) argued that jealousy reduced over the course of therapy and CAT was responsible for this change. The AT referenced clear statistical evidence of change in nomothetic and ideographic measures. The AT identified four types of change evidence: retrospective attribution, process-outcome mapping, early changes in stable problems and event-shift sequences (Elliott, 2002).

Sceptic brief. The sceptic team (ST) argued that jealousy did not significantly change and that CAT was not responsible for any trivial changes that did occur. The ST identified seven types of evidence to support their position: trivial change, statistical artefacts, relational artefacts, expectancy artefacts, extra therapy events, biological causes and the reactive effects of the research. The ST emphasized lack of change by finding exceptions to statistical significance (e.g. lack of change on the full IIP-32) and questioning the reliability of the statistical evidence. Particular emphasis was placed on the role of extra-therapy events and pharmacological causes of change (i.e. the commencement of medication prior to the baseline).

Affirmative rebuttal. The AT refuted the ST brief that the changes recorded were trivial. They argued that the participant was able to manage jealousy more effectively following CAT despite the continuation of jealous feelings. The AT reaffirmed the reliable and clinically significant change on nomothetic measures. The AT emphasized the evidence regarding the deteriorating baselines in self-esteem, anxiety, jealousy and compulsive observation ideographic measures that occurred prior to start of active treatment that then signalled a shift in trend towards improvement.

Sceptic rebuttal. In their rebuttal, the ST argued that the nomothetic outcome measures did not accurately capture the core difficulties which persisted following termination. They refuted true change in the ideographic measures by suggesting that the participant adjusted

ratings to please the therapist. Moreover, the ST continued to argue that evidence from the change interview and therapist's notes reflected marked 'social desirability' bias.

Adjudication

All three judges agreed that the affirmative brief and rebuttal provided the most convincing and comprehensive account of outcome. Significant clinical change had occurred and it was directly attributable to CAT. Whilst several pieces of evidence presented in the sceptic brief were considered as reasonable arguments mitigating against efficacy, judges did not feel these arguments were sufficient. All three judges considered that the attributions in the change interview, HAT evidence and the variety and range of positive ideographic and nomothetic outcomes as sufficient evidence of efficacy. One judge particularly considered that 'common factors' had been important for change. All three judges agreed that some CAT technical factors such the narrative reformulation and use of the SDR had also been particularly useful in facilitating change. In conclusion, the efficacy of the CAT in the current case of OMJ was supported by all three judges, who each ruled that change had occurred due to the action of the therapy beyond any level of reasonable doubt.

Discussion

This study reported on the first adjudicated HSCED study of the treatment of OMJ to assess the efficacy of CAT in creating durable change. The matrix of quantitative and qualitative clinical evidence presented in the rich case record ensured a broad and thorough account of potential clinical outcomes was created. This was then debated by independent and opposing research teams, in order to reduce researcher bias in the interpretation of outcome (Elliot, 2009). Following diligent deliberation, expert judges determined that

evidence for efficacy of CAT was 'beyond reasonable doubt.' This main finding represents an addition to the previous CAT-OMJ evidence, which was limited to the assessment of effectiveness (Kellett & Totterdell, 2013). Given that OMJ is notoriously difficult to treat (Cobb & Marks, 1979), then the change achieved over the relatively brief time frame of 16 sessions is encouraging. Because OMJ has a significant relational component (e.g. the impact and reciprocal response of the partner to the compulsive safety-seeking behaviours), then use of more relational therapies appears indicated. Interpersonally, the analysis of the IIP-32 subscales indexed a pre-post reduction to dependency and this was a core exit for the participant. Clearly, the CAT was also not a panacea for all the participant's problems. In terms of lack of change, there was no evidence that CAT helped the participant to reduce their compulsive observation of their partner and the participant struggled to socialize in the follow-up period. This is issue with struggling to socialise was a feature of the follow-up and the patient was encouraged to see socialising as another form of being appropriately less dependent upon her partner.

The changes experienced during CAT were reported in the change interview to be unexpected, unlikely without the therapy and were deemed as important in terms of changing jealousy. This would be an example of retrospective attribution of change (Elliott 2002; Elliott et al 2009). Some of the factors creating outcome were highly specific to the CAT model. For example, the introduction of the narrative reformulation appeared to particularly change the trajectory of the jealousy and behavioural balance ideographic measures and appeared to facilitate a sudden gain in these ideographic time series. This would be an example of an event-shift sequence of change in key symptoms (Elliott 2002; Elliott et al 2009). There was also evidence of reduced state-shifting due to treatment. This would evidence the theoretical utility of the multiple self-states model (Ryle & Kerr, 2002) in conceptualizing OMJ and also suggest that a degree of integration in states occurred over the

course of therapy. This would be an example of a change in a previously stable pattern of instability (Elliott 2002; Elliott et al 2009). Much of what the participant found helpful were 'technical' factors specific to the CAT model such as narrative reformulation and goodbye letters, but also the collaborative nature of 'mapping in the moment' of jealous roles and procedures (Potter, 2010). In terms of methodological innovations in adjudicated HSCED research, then the use of longitudinal qualitative analysis of the diary entries is the first known work of this kind. Collecting such data opens up possibilities for integrating more detailed qualitative methods (e.g. interpretative phenomenological analysis; Smith, Flowers & Larkin, 2009) into HSCED evaluations.

There are several methodological limitations to the current study that usefully highlight potential directions for future research. Primarily, the N=1 sample is a major cause for concern in terms of the generalizability of the results. N=1 studies are always open to the criticism of whether they are measuring a 'therapist effect' rather than therapeutic effectiveness. Given the previously identified potential recruitment problems of any larger controlled trials for OMJ, then replication across participants and therapists using multiple baseline designs would appear be a logical next research step (Gay & Airasian, 2000; Hersen & Barlow, 1984). Such designs particularly create the opportunity to better explore the impact of model-specific therapeutic procedures. Whilst the qualitative diary entries were coded independently by two raters, this was not the case with the change interview. Future studies using the change interview should use independent coders for defining change elements. With regards to the adjudication process, another threat to internal validity may have been any inherent bias in judges' decision-making process. It could be argued that judges' decisions were inherently influenced by their respective positions regarding the CAT model and not on the case evidence presented to them.

The follow-up period was per protocol for a 16 session CAT intervention (Ryle & Kerr, 2002). However, future research could usefully incorporate longer follow-up periods in order to index therapeutic durability issues in more detail. Comparisons of the effectiveness of 8, 16 and 24-session versions of the CAT model for OMJ would be useful. CAT outcome studies with OMJ could also usefully benefit from inclusion of the competency in cognitive analytic therapy measure (Bennett & Parry, 2004), a measure of the therapeutic alliance (Elliott, 2002) and a session impact measure (Elliott & Wexler, 1994). The availability of a fully-validated morbid jealousy primary outcome measure that enabled associated RCI analysis of change would have strengthened the rich case record. The development and validation of such an outcome measure is future research goal. Administration of the change interview and HAT at mid-point, termination and follow-up would also be more sensitive in capturing any nascent change processes.

In conclusion, this methodologically rigorous case study makes a contribution to the limited evidence base for treatment of OMJ using a brief, integrative and analytically informed therapy. There is clearly still much to learn about what works for OMJ before any valid treatment guidelines are possible. The multiple self-states model of CAT appears to be able to effectively conceptualize the states that have been repeatedly reported in the OMJ literature, such as clinginess, interrogation, lack of trust, checking and rage (Kingham & Gordon, 2004) and so provides a useful theoretical framework for intervention. The evidence offered here suggests that CAT shows promise in treating jealous patients, but further detailed testing is clearly required.

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Table 1. *Ideographic outcome measures; wording, phase descriptive statistics and ANCOVA*

Ideographic measure	Item wording and anchors	Baseline (*n*)	Treatment (*n*)	Follow-up (*n*)	Baseline mean (*SD*)	Treatment mean (*SD*)	Follow-up mean (*SD*)	*F*-value
Measure 1 (jealousy intensity)	*In terms of my jealousy today I have felt…Not jealous/overwhelmed by jealousy*	27	90	76	7.37 (0.84)	5.55 (2.02)	2.17 (2.02)	6.71**
Measure 2 (compulsive observation)	*I have been watching my husband…Not at all/never taken my eyes off him*	27	90	76	2.33 (1.24)	2.41 (0.86)	2.00 (0.16)	2.53*
Measure 3 (state-shifting)	*My state of mind has been…Stable/Switching between moods*	27	90	76	7.33 (1.00)	5.19 (1.90)	3.95 (0.80)	6.74**
Measure 4 (anxiety)	*I have been feeling today…Calm/Panicky*	27	90	76	5.22 (1.42)	4.19 (1.51)	3.75 (0.77)	5.68**
Measure 5 (self-esteem)	*My self-esteem today has been…Rock bottom/Solid*	27	90	76	2.07 (0.83)	2.92 (0.88)	3.46 (0.84)	11.58*
Measure 6 (behavioural balance)	*Overall today I have been…Overdoing things/In balance*	27	90	76	3.74 (1.40	4.92 (1.38)	5.53 (0.77)	8.58*

Note: Direction of expected change is reversed in measures where higher ratings indicate improvement. * p < .05, ** p < .01

Table 2. *Effect sizes, p values for main effect and post-hoc comparisons on the ideographic measures*

Measure	Concept	Overall effect of phase (Exact *p* value)	Effect size (PEM)	Post hoc *p* values: baseline vs. treatment	Post hoc *p* values: baseline vs. follow-up	Post hoc *p* values: treatment vs. follow-up
Measure 1	Jealousy	.00***	78.31*	.03***	.00***	.02***
Measure 2	Compulsive observation	.08***	8.43	-	-	-
Measure 3	State-shifting	.00***	86.14*	.01***	.00***	.23
Measure 4	Anxiety	.00***	70.48*	.02***	.00***	.64
Measure 5	Self-esteem	.00***	77.70*	.00***	.00***	.02***
Measure 6	Behavioural balance	.00***	98.10**	.01***	.00***	.18

Note: Direction of expected change in reversed in measures where higher ratings indicate improvement (i.e. A<B). No post-hoc comparisons were conducted for Measure 2 due to lack of statistical significance in the main effect. * Indicates a moderately effective intervention. ** Indicates a highly effective intervention. *** signals statistically significant change

Table 3. *Nomothetic outcome measures*

Measure	Caseness cutoff	RCI	CSC	Clinical sample mean (*SD*)	Non-clinical sample mean (*SD*)	Reliability coefficient	Assessment (T Score)	Termination (T Score)	Follow-up (T Score)
BDI	17.00	9.41	15.99	32.96 (12)	7.65 (5.9)	.92	**39.00**	6.00*	5.00
BSI-GSI	63.00	0.63	0.71	1.40 (0.72)	0.35 (0.37)	.90	**1.34 (69.00)**	0.09*(43.00)	0.36 (54.00)
IIP-32	1.50	0.70	1.18	1.47 (0.65)	0.95 (0.52)	.85	0.65	0.56	0.75
PJQ	50.00	-	-	-	-	-	**103.00**	**50.00**	45.00

Note: Scores for clinical caseness are represented as T scores. Reliability coefficient is test-retest reliability estimate.
Items in bold indicate clinical caseness. * Indicates reliable change compared to previous score.

Table 4. *Subscale analyses of the IIP-32 outcomes*

IIP-32 subscale	RCI	CSC	Clinical sample mean (*SD*)	Non-clinical sample mean (*SD*)	Reliability coefficient	Assessment score	Termination score	Follow-up score
Hard to be assertive	1.38	1.49	1.82 (1.17)	1.23 (0.95)	0.82	1.00	1.00	1.25
Too aggressive	0.68	1.01	1.42 (1.09)	0.76 (0.68)	0.95	0.75	0.50	0.25
Hard to be sociable	1.42	1.15	1.64 (1.28)	0.87 (0.75)	0.84	0.01	0.25	1.25*
Too open	1.31	1.71	1.52 (1.06)	1.86 (0.83)	0.80	2.50	2.00	2.00
Too caring	1.33	1.64	1.83 (1.07)	1.47 (0.94)	0.80	1.50	1.00	1.00
Hard to be supportive	1.65	0.54	0.89 (0.99)	0.42 (0.35)	0.64	0.01	0.01	0.01
Hard to be involved	1.38	0.96	1.24 (1.11)	0.74 (0.87)	0.80	0.01	1.25	1.00
Too dependent	1.51	1.26	1.56 (1.01)	1.01 (0.86)	0.71	2.00	0.50*	1.25

Note: Subscale norms are based on a female clinical and non-clinical sample (Barkham, Hardy & Startup, 1996). Caseness cut off criteria were not available for individual IPP subscales. *Indicates reliable change from previous score.

Table 5. *Summary of the longitudinal content analysis of qualitative diary entries*

Number of diary entries containing references to jealousy	Baseline	Treatment	Follow-up
Improvement in jealousy	0	6	7
Worsening of jealousy	6	5	5
Stagnation of jealousy	7	3	2
A mixture of improvements, worsening and stagnation	1	2	5
No reference to jealousy	3	37	39
Reference to jealousy but direction of change is unclear	4	3	2
Number of diary entries containing references to specific aspects of therapy	Baseline	Treatment	Follow-up
Aspects of therapy as helpful	0	4	2
Aspects of therapy as hindering	0	0	0
Aspects which were a mixture of helpful and hindering	0	0	0
No reference to aspects of therapy	21	50	58
Reference to aspects of therapy but unclear if they were helpful or hindering	0	2	0
Number of diary entries containing references to therapy in general	Baseline	Treatment	Follow-up
Therapy as helpful	0	2	0
Therapy as hindrance	0	0	0
Therapy as a mixture of helpful and hindering	0	0	0
No reference to therapy in general	20	53	60
Reference to therapy but unclear whether it was helpful or hindering	1	1	0
Number of diary entries containing references to events outside therapy	Baseline	Treatment	Follow-up
Events as helpful	0	17	9
Events as a hindrance	10	15	8
Events as a mixture of helpful and hindering	0	0	2
No reference to external events	11	8	26
Reference to external events but unclear whether they were helpful or hindering	0	16	15

Table 6. *Changes experienced during CAT and ratings of expectancy, likelihood and importance.*

	Expectancy	Likeliness	Importance
Living more in the present and looking forward to the future	5	1	5
Less dependent on husband and more independent	5	4	5
No longer worries about possibility of her husband cheating	4	3	4
Feelings for husband	2	4	3
Less rumination and more 'going with the flow'	2	1	5
Less obsessions over her husband's affair	5	1	5
Sleeping and generally functioning better	4	1	5
Less obsessive about weight	2	2	5

Note: Expectancy is rated on a five-point scale (1-expected, 3- neither expected nor unexpected, and 5- unexpected/surprising). Likeliness is rated on a five-point scale (1- unlikely without therapy, 3- neither likely nor unlikely and 5- likely without therapy). Importance is rated on a five-point scale (1-not at all important, 2 slightly important, 3 moderately important, 4- very important and 5- extremely important).
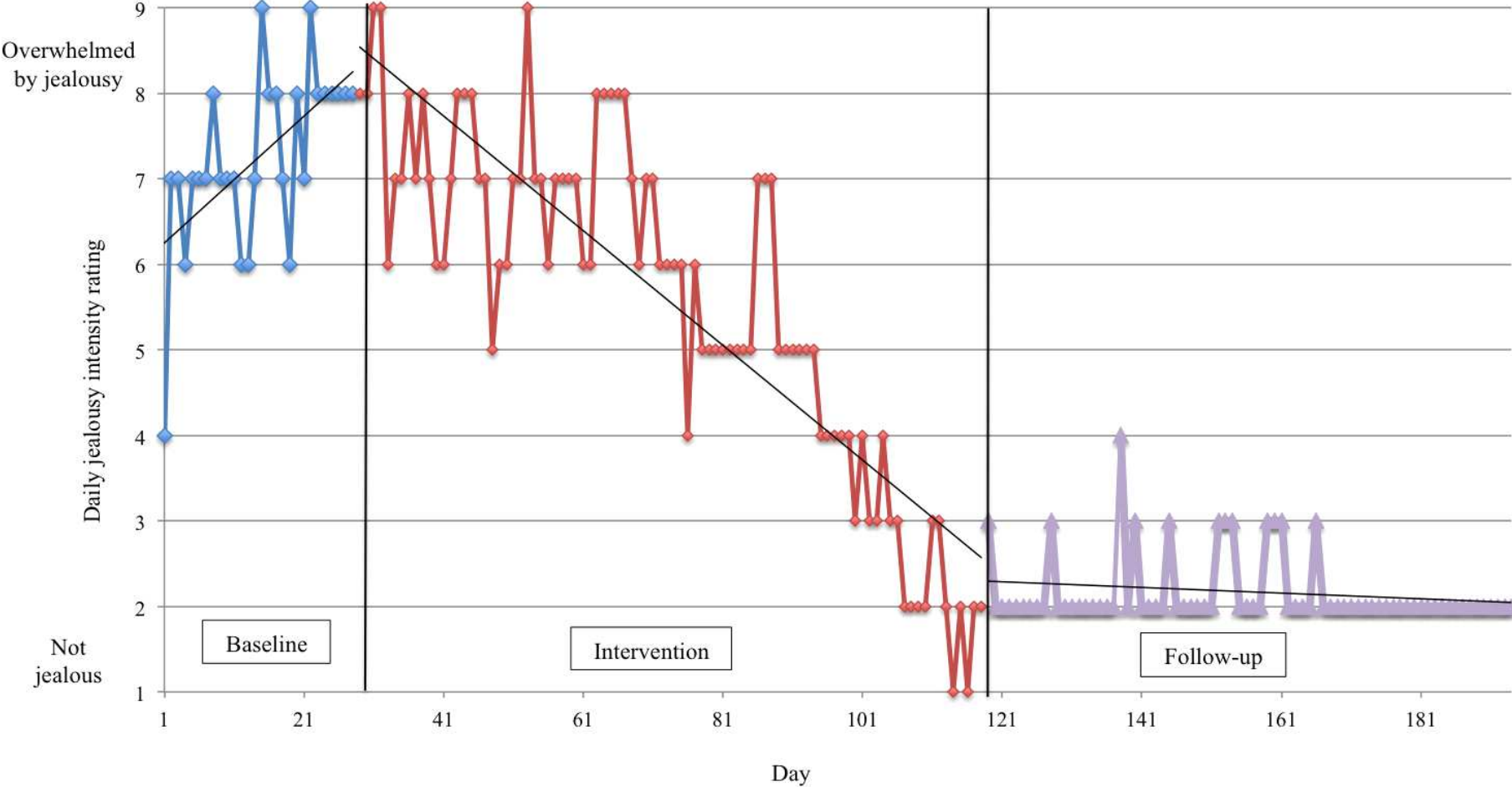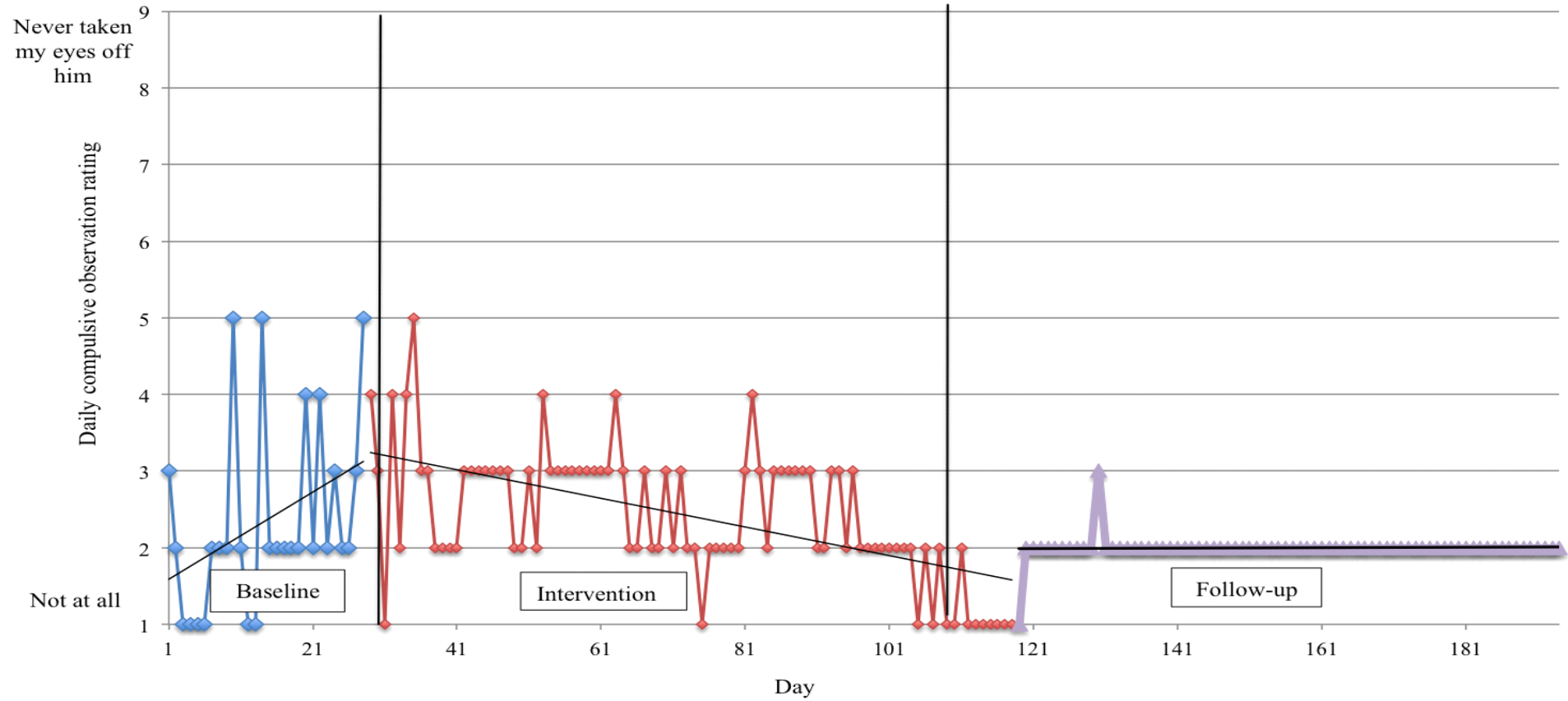
Figure 1. A graph of time series data for jealousy intensity.

Figure 2. A graph of time series data for compulsive observation.
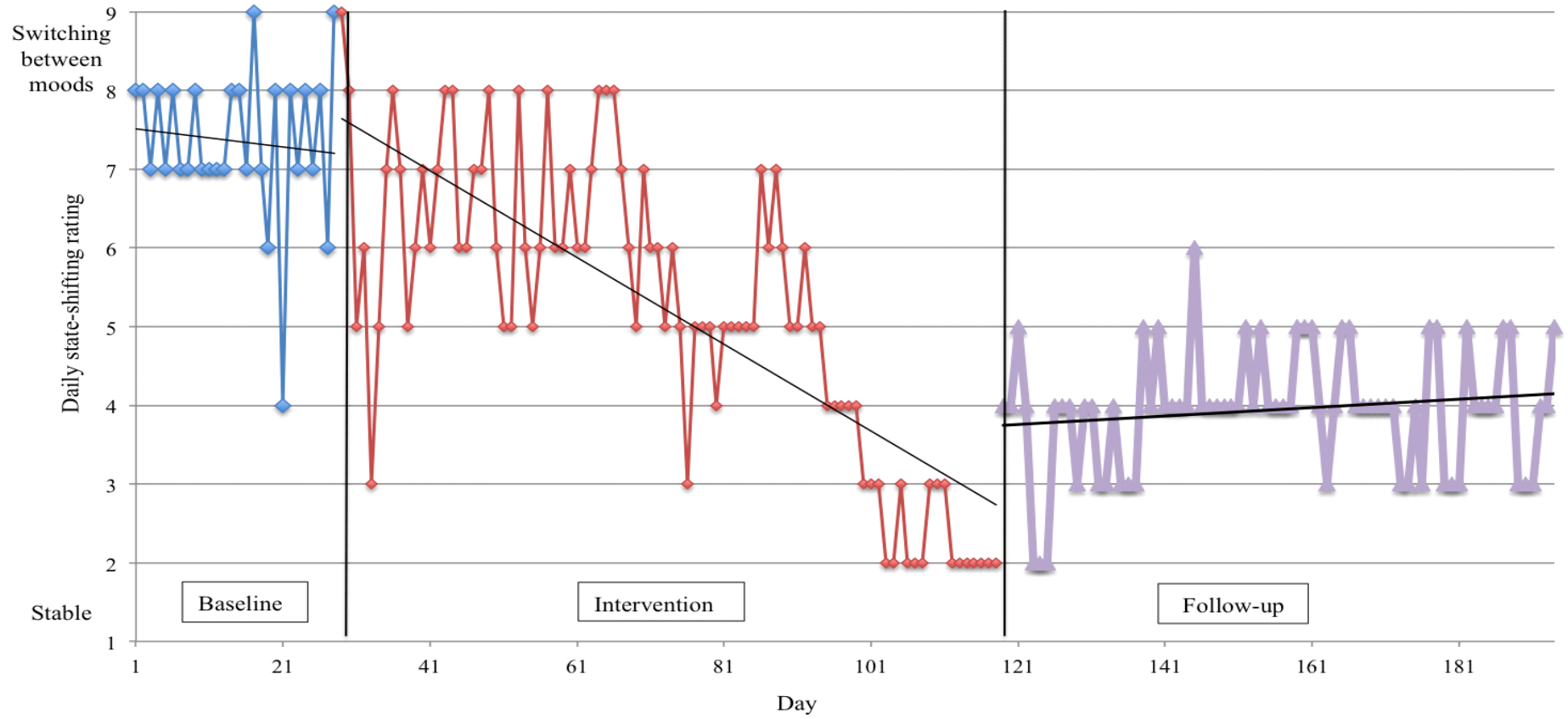
Figure 3. A graph of time series data for state-shifting
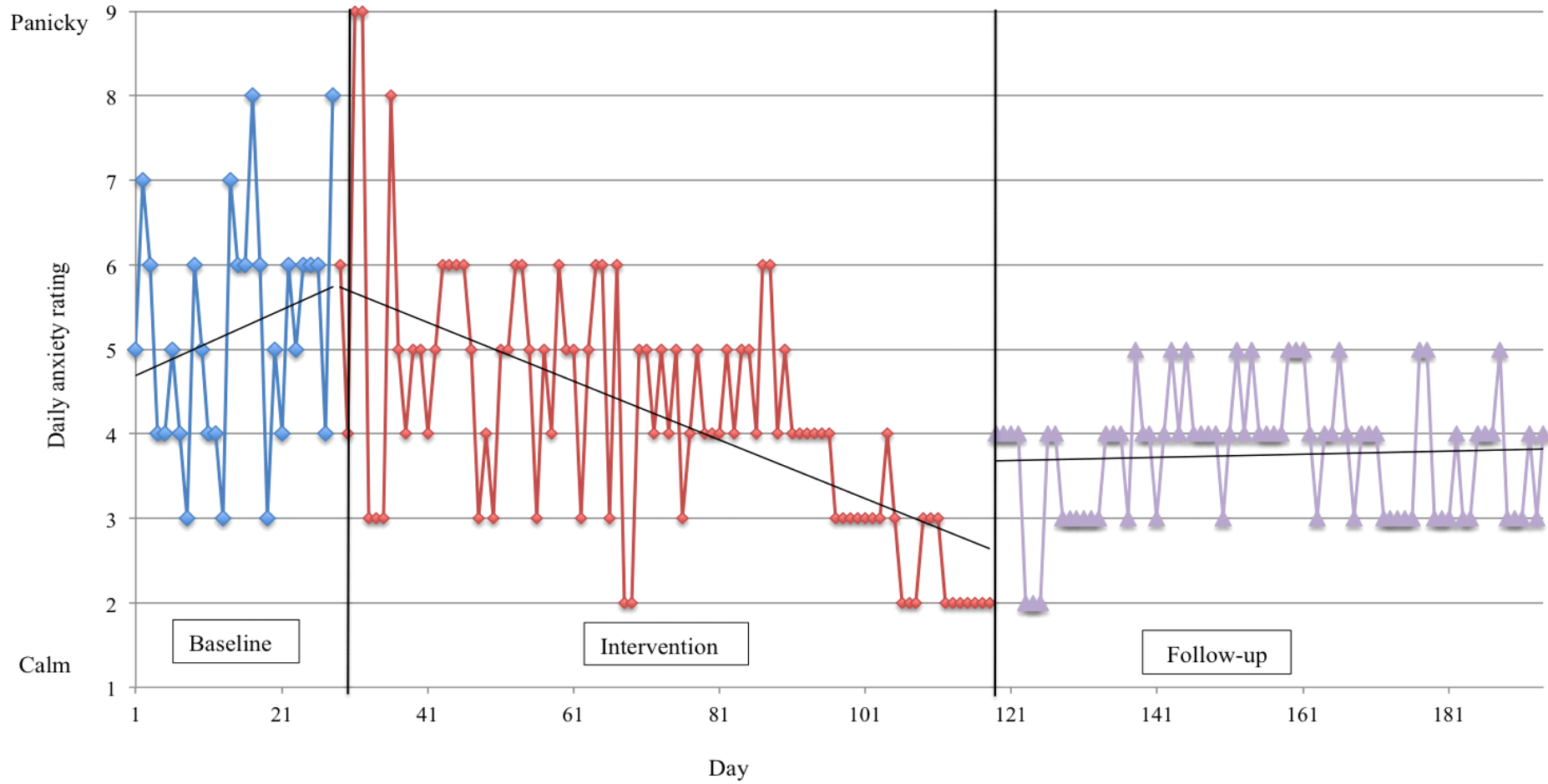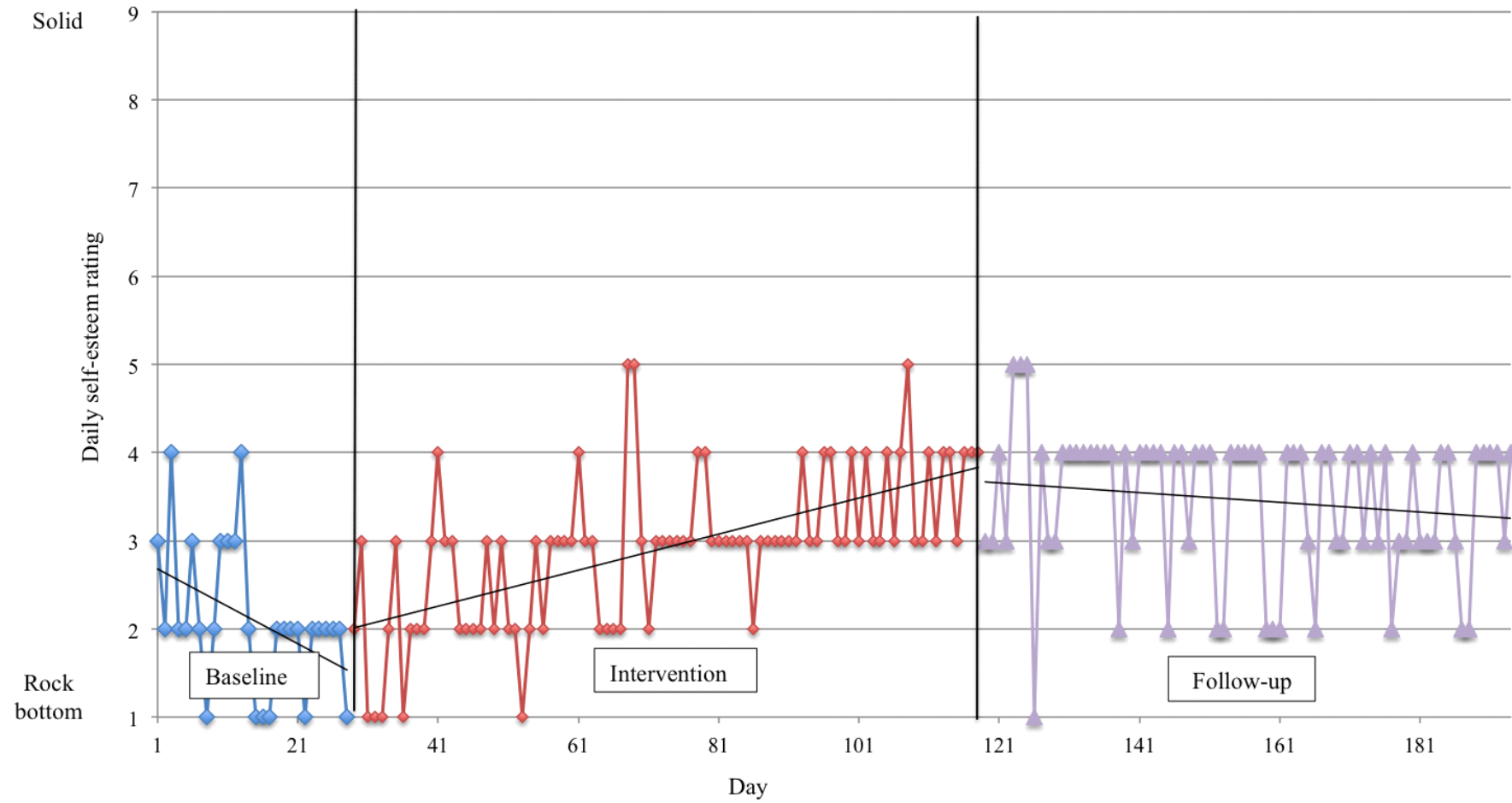
Figure 4. A graph of time series data for anxiety.
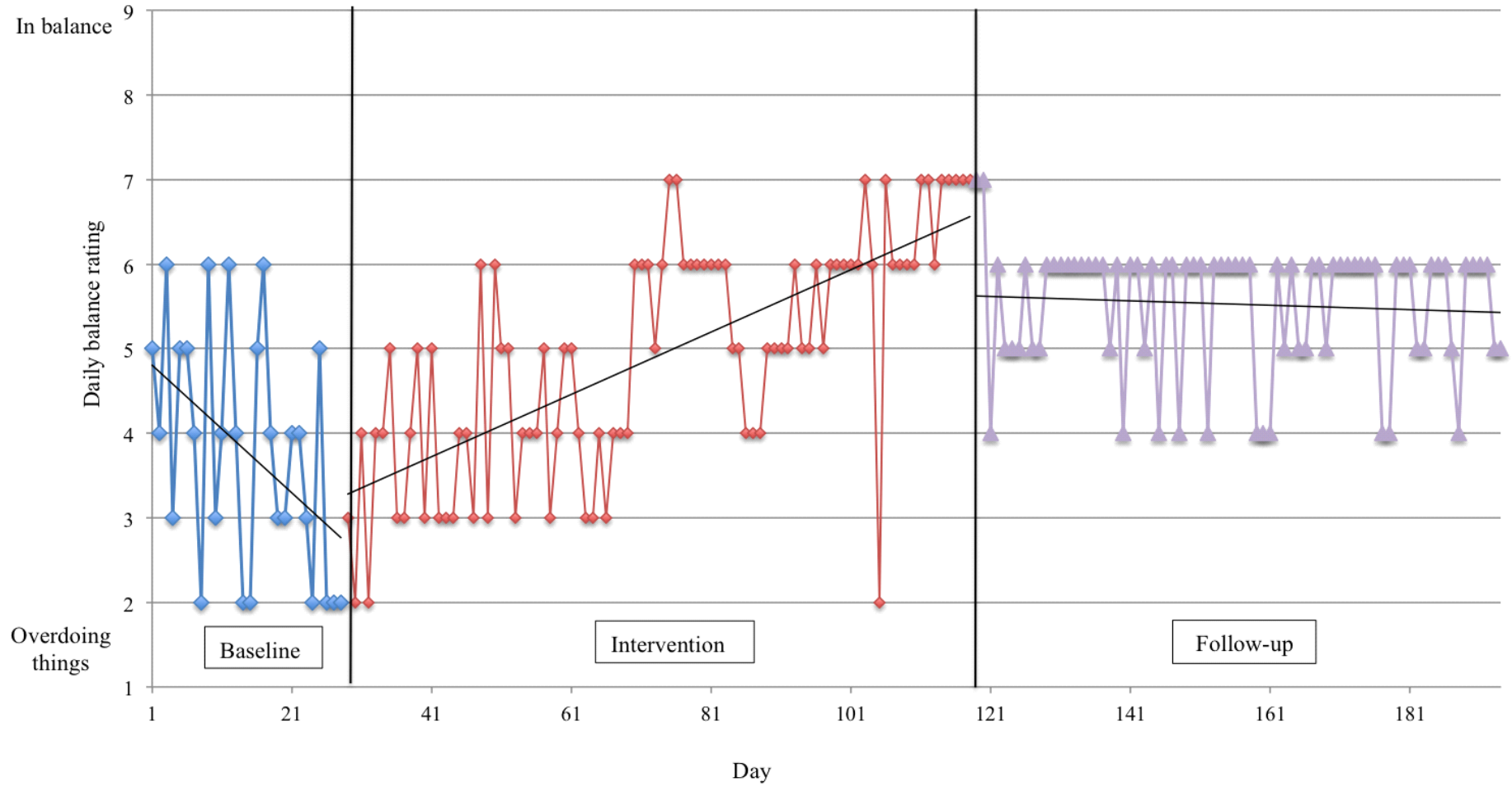
Figure 5. Graph of time series data for self-esteem.

Figure 6. Graph of time series data for balance