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Abstract

The evidence base for integrative forms of psychotherapy for obsessive morbid jealousy (OMJ) is very limited and so this study sought to examine the effectiveness of cognitive analytic therapy (CAT). In a case series, three A/B with extended follow-up single case experimental designs were completed with patients meeting criteria for OMJ. Results indicate that on the daily ideographic jealousy measures (across and within each case) there was evidence of significant reductions in morbid jealousy (and associated symptoms) during the treatment phase. Treatment effects were maintained over the follow-up period on the ideographic measures. On the primary nomothetic measure, all cases were classed as 'not jealous' by follow-up and partner violence was extinguished across all cases. This evidence suggests that CAT maybe offer a suitable treatment option for cases of OMJ. Methodological limitations, theoretical insights and treatment implications are discussed.

Jealousy is a basic and common emotion involving fear of loss of a valued relationship to a potential rival, which only becomes 'morbid' when chronic and consistent preoccupations with infidelity drive associated jealous behaviors (Cobb, 1979; Marazziti et al. 2003). Jealousy can house and represent a complex blend of emotions including anxiety, worry, paranoia, sadness, anger, hate, regret, blame and bitterness (Maggini, Lundgren & Emanuela, 2006). Meta-analytic evidence finds a sex difference in that men tend to respond with jealousy to sexual infidelities, whilst women tend to respond with jealousy to emotional infidelities (Sagarin et al. 2012). Morbid jealousy has a detrimental impact on emotional wellbeing/social relationships (Cobb, 1979) and heightens risk of suicide (Mooney, 1965), homicide (Campbell et al. 2003) and domestic violence (Mullen & Maack, 1985). Morbid jealousy can present in either delusional or obsessive subtypes (Shepherd, 1961). Delusional morbid jealousy (DMJ) is an aspect of psychosis and/or organic brain disease (Cobb, 1979). Obsessive morbid jealousy (OMJ) has been likened to obsessive-compulsive disorder, as intrusive jealous thoughts tend to drive compulsive behaviors such as clinginess, interrogating and checking (Cobbs & Marks, 1979). OMJ patients typically have insight and often experience shame or guilt regarding the impact of jealousy on their relationships (Kingham & Gordon, 2004).

Two factors appear to maintain jealousy; (a) the idea of infidelity (triggered by the behaviour or attitude of the partner) and (b) a concomitant psychiatric disorder (Maggini et al. 2006). Gehl's (2010) review of the literature concluded that OMJ was nested within trait dimensions of personality (e.g. dependency, aggression, mistrust, manipulativeness, enticement, exhibitionism and impulsivity) and was reflective of borderline, dependent, histrionic, narcissistic, avoidant and passive- aggressive tendencies. Therefore, OMJ can often present in the context of personality disorder (Batinic, Duisina & Burisic, 2013). OMJ has also attracted theoretical attention from

psychodynamic (Dutton, et al, 1994), cognitive (Tarrier et al 1990), cognitive-behavioural (Leary & Tirch, 2008), behavioral (Crowe, 1995) and evolutionary perspectives (Buss, 2013). Associated well-conceived treatments based on these theories however have been slow in development and then sluggish in credible testing. Contemporary well conducted evaluations regarding the treatment of OMJ are limited. No large-scale treatment trials of OMJ have been conducted and much of the clinical evidence is anecdotal (e.g. Anderson, 2002). No single psychotherapeutic approach has generated sufficient evidence to currently recommend it as the treatment of choice for OMJ.

Behavioral therapy for OMJ focusses on in vivo exposure and response prevention methods. Cobb and Marks (1979) reported a case series of behavior therapy (N=4) showed improvements in the quality of relationships and less violence at (15-month) follow-up. De Silva (1987) reported that compulsions extinguished early in treatment, with improvements maintained at 10-months follow-up in a behavior therapy case study. An adapted behavioral systems approach was tested in successful early case studies by Crowe (1995) and Teismann (1979) and then further evidenced across three case studies (Margolin, 1981). More recently, a well conducted single case of functional analytic therapy (Lopez, 2003) illustrated an effective behavioral intervention for OMJ.

Cognitive therapy focusses on correcting maladaptive beliefs, assumptions and negative automatic thoughts focal to themes of infidelity. Cognitive therapy was initially tested in a case study (Dolan & Bishay, 1996a) and then in a larger controlled study with N=38 out-patients (Dolan & Bishay, 1996b). Statistically significant changes on jealousy-specific outcome measures occurred for those receiving cognitive therapy. In a case series, Bishay et al. (1989) provided cognitive therapy to N=13 OMJ patients to find that nine were ‘much improved’ after treatment (eight maintained

progress at 6-month follow up). Cognitive-behavioral treatment (CBT) of OMJ blends exposure based methods with cognitive restructuring. Marks and De Silva (1991) reported a case study finding that behavioral (but not cognitive) aspects of jealousy responded to treatment. Kellett and Totterdell (2013) illustrated in a single case significant reductions to self and partner-rated jealousy during CBT. A qualitative case study has also reported the effectiveness of eye movement desensitization and reprocessing (EMDR; Keenan & Farrell, 2000).

Given the relative rarity of OMJ cases presenting to clinical services (Kingham & Gordon, 2004), recruiting sufficient numbers to a large-scale group studies or randomized clinical trials appears to have been largely unsuccessful. Where such recruitment issues occur, then the use of single case experimental design (SCED) clearly offer the opportunity to evaluate therapeutic effectiveness routine service delivery settings (Barlow, Nock & Hersen, 2008). When an N=1 approach is expanded to that of a small case series, it can identify theoretical and/or clinically important treatment factors that are often obscured in group studies due to the averaging artifact (Towgood, Meuwese, Gilbert, Turner & Burgess, 2009). The effectiveness of cognitive analytic therapy has been previously illustrated via a SCED (Kellett and Totterdell (2013) and an adjudicated hermeneutic SCED (Curling et al. 2017). This paper seeks to expand on this initial evidence by reporting three successive SCEDs to facilitate comparison of outcomes and patterns of change across participants.

The theoretical rationale for CAT as an integrative treatment model is based on the evidence that OMJ contains intra and interpersonal difficulties (Rodebaugh et al. 2010; DiBello et al. 2013), and so CAT offers a complimentary strong focus on conceptualization, ability to understand intrapsychic processes/structures and interpersonal analysis of perpetrator-victim dynamics (Knabb, Welsh & Graham, 2011). The marked relational nature of many jealous symptoms (e.g. clinginess and dependency) would

suggest that CAT as a relationally-informed integrative therapy was appropriate (Ryle & Kerr, 2002). The core integrative theoretical aspects of the CAT model (i.e. the multiple self-states model, reciprocal roles and associated procedural sequences; Ryle & Kerr, 2002) offers utility in conceptualizing the state-shifting (e.g. pleading and seeking reassurance turning into angrily attacking), reciprocity (e.g. occupying both abandoning and abandoned roles) and procedural elements (e.g. jealous actions having interpersonal consequences, such as forcing partners away) of OMJ. In addition, the role of childhood trauma in jealousy (Yimbul et al. 2010) would also suggest that integrative therapies that recognize and formulate the role of past trauma such as CAT (Ryle & Kerr, 2002), would be able to conceptualize and treat any past trauma elements. Finally, the analytic nature of the CAT model enables the opportunity to analyze when 'enactments' in the therapeutic relationship mirror past relationships and current relationship with partners (Bennett & Parry, 2004). CAT as an integrative treatment model is therefore distinct from the extant OMJ evidence base. The current research is also novel within the OMJ treatment evidence base, because of the methodological depth within the small case series (i.e. each constituent case is a standalone SCED). The current study enables insight into the within-person change process in OMJ during CAT, as each case acted as their own control (Towgood et al. 2009). The central aim of the current study was to further test an integrative psychotherapy for OMJ and examine similarities and differences in outcomes across cases.

Method

Approval from relevant ethics and information governance committees was obtained (study ref 12/YH/0311) to analyze the retrospective data.

Therapist, context and participants. The therapist was a male Consultant Clinical Psychologist and accredited CAT practitioner/supervisor with 11 years of post-qualification experience delivering psychological therapies to adults at the time of the study. Treatment was provided in a routine National Health Service secondary care setting in the UK. Three participants with OMJ were treated with CAT. No participant was prescribed any psychoactive medication at any stage, but all three had been previously unresponsive to anxiolytics and anti-depressants. Patient 1 had been previously unresponsive to low intensity CBT, patient 2 had been unresponsive to both high intensity CBT and counselling and patient 3 had not engaged in any psychological therapy previously.

Psychodiagnostic assessment

Each patient at a screening session was assessed using the Kellett, Boyden & Green (2012) diagnostic interview format for OMJ. This focusses on three aspects; psychological assessment (e.g. form of jealousy, attachment style, history, trigger analysis, autonomic, cognitive and behavioral symptoms), mental state examination and risk assessment.

Patient 1. Patient 1 was female, 54 years of age and received 24 sessions of CAT (total duration of contact was 69 weeks). Long-standing difficulties with jealousy across all romantic relationships (including a previous marriage and her current long-term relationship) were reported. She reported deep distrust in all close romantic relationships and chronic fears regarding infidelity. Her father had conducted many affairs and her mother engaged in jealous checking behaviors. There was no history of abuse, although she reported feeling rejected by her stepfather following abandonment by her biological father. The abandonment issue dictated a longer treatment contract to enable the ending of treatment (and the therapeutic relationship) to be effectively

processed. The patient reported a long comorbid history of depression with suicidal ideation, low self-esteem and anxiety. There was a history of self-harm via overdose and substance misuse in the form of binge drinking. When jealous, the patient reported high frequency checking of her partner's whereabouts, phone usage, underwear, bed-clothes and internet records. In relation to her partner, daily reassurance seeking was a feature, as well as frequent interrogations regarding fidelity and panic attacks should the partner be out of sight. Patient 1 had strong dependent traits. She displayed angry episodes when jealous and had occasionally physically assaulted her partner (incidents had occurred in the 6-months prior to assessment).

Patient 2. Patient 2 was female, 36 years of age and received 16 sessions of CAT (total contact time was 41 weeks). Life-long difficulties with jealousy across all romantic relationships were reported. Childhood experiences included the adolescent exposure of a 'double-life' led by her father and modeling of jealousy behaviors by her mother. No history of abuse or substance misuse was reported. There was however a history of depression (with suicidal ideation), low self-esteem and self-harm via overdosing. Patient 2 reported high frequency jealousy and paranoia concerning infidelity and compulsively checked up on the whereabouts of her partner, his phone usage and social media/internet history and often stalked and spied on him. She was on the verge of installing surveillance equipment in the home at the point of assessment. Panic attacks occurred should her partner be out of the home alone and she continually sought reassurance regarding love, commitment and fidelity. Patient 2 had strong dependent traits. Occasional physical assaults occurred when the patient felt overwhelmed with jealousy (incidents had occurred in the 6-months prior to assessment).

Patient 3. Patient 3 was a male, 58 years of age and received 16 sessions of CAT (total contact time was 44 weeks). He reported experiencing intense jealousy and paranoia regarding fidelity across his two marriages. Childhood experiences included

feeling unloved and ignored by parents and also strict discipline enforced by his father. There was no history of abuse, self-harm, suicide attempts or substance-misuse. He reported chronic low self-esteem, anxiety and poor self-worth. Patient 3 stated that he frequently sought reassurance concerning the fidelity of his wife. He noted that he had a strong tendency to control the activities, clothing and company kept by his wife. He reported high frequency checking of his wife's whereabouts, phone usage, internet history, social media usage and underwear. He stated that he had repeatedly stalked his wife. Patient 3 also had strong dependent traits. When jealous, the patient admitted to engaging in violent behavior towards his wife, in order that he get his own way (incidents had occurred in the 6-months prior to assessment).

Materials

The following nomothetic outcome measures were completed at first assessment session, termination and follow-up. The PJQ (see below) was the primary nomothetic outcome measure.

Beck Depression Inventory-II (BDI-II). The BDI-II is a commonly used measure of depression with sound psychometric properties (Beck, Steer & Brown, 1996). Overall scores on the BDI-II are classified as follows: 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 is a measure of interpersonal difficulties, with high internal consistency and test-retest reliability (Barkham, Hardy & Startup, 1996) across eight dimensions and/or a full-scale score. Clinical caseness on the IIP-32 is a full-scale mean score of 1.5 (Elliott et al. 2009).

Brief Symptom Inventory (BSI). The BSI is a measure of psychological distress across nine symptom dimensions and three global estimates and has good psychometric

reliability and validity (Derogatis & Melisaratos, 1983). The global distress index (GSI) is the most common outcome metric reported from the BSI (Derogatis, 1993).

Prestwich Jealousy Questionnaire (PJQ). The PJQ is a measure of cognitive, affective and behavioral aspects of OMJ with a score of >50 indicating clinically significant jealousy (Intili & Tarrier, 1998). Overall PSQ scores are classified as follows: no jealousy (0-33), mild jealousy (34-49), moderate jealousy (50-99), severe jealousy, (100-132) and very severe jealousy (>133).

Ideographic measures designed to capture and measure the characteristic features of each participant's OMJ were collected via a daily diary continuously throughout assessment, treatment and follow-up phases.

Ideographic measures. Each patient completed between 4-6 ideographic measures and these were designed in collaboration with the therapist at the first session. All patients had a matched OMJ primary ideographic measure (measure 1) to assess the intensity of daily jealousy, with additional ideographic measures of jealous thoughts, feelings and behaviors. All ideographic measures used a 1-9 Likert scale; item wording and scale anchors are reported in Table 1.

Design

Each SCED used a matched A/B with follow-up methodology containing three phases. The baseline ('A') phase consisted of three sessions of purely assessment activity. The treatment ('B') phase was initiated by discussion (at session 4) of a narrative reformulation of the patient's jealousy (as is consistent with other CAT SCED research; e.g. Kellett, Simmonds-Buckley & Totterdell, 2016). Treatment lasted for 13 sessions in the 16 session CAT and for 21 sessions in the 24 session CAT. The follow-up phase was concluded with a final session with the therapist. Patient 1 (24 session CAT) had a

6-week baseline, spent 42.5 weeks in treatment and had a follow-up period of 20.5 weeks. Patient 2 (16 session CAT) had a 7-week baseline, spent 13.5 weeks in treatment and had follow-up period of 20.5 weeks. Patient 3 (16 session CAT) had a 6-week baseline, spent 25 weeks in treatment and had a follow-up period of 13 weeks.

Treatment. CAT is a relational, collaborative and time-limited psychotherapy delivered in 8, 16 or 24 session contracts according to the severity of the presenting problem. The treatment evidence base for CAT has been systematically reviewed and consists of typically high quality studies (Calvert & Kellett, 2014), with a meta-analyzed mean effect size of d+=0.83 (Ryle, Kellett, Hepple & Calvert, 2014). CAT integrates cognitive and analytic principles and its assessment and treatment methods have been clearly established and delineated (Ryle & Kerr, 2002). CAT contains three stages (a) 'assessment' leading to early narrative reformulation, (b) 'recognition' marked by methods to enhance self-awareness of problematic states/roles/procedures, via production of a sequential diagrammatic reformulation (SDR) and associated self-monitoring and (c) 'revision' focused on application of change methods ('exits' in the language of CAT) which are bespoke to the client, their individual reformulation and zone of proximal development. SDRs were based upon the CAT multiple self-states model (Ryle, 2007) to visually display the major and distinct discontinuities apparent regarding relating to self and partners. Therefore, OMJ was conceptualized as a presenting problem consisting of a range of distinct states, supported by structural dissociation between identified states (Pollock, Broadbent, Clarke, Dorrian & Ryle, 2001). Procedural sequences on the SDR emphasized how the (often externally unprovoked) abrupt switches between states occurred. States common across the cases were (1) 'enmeshment' within the relationship, (2) cross-examining, (3) checking and (4) abandonment. Each patient had differing exits due to their differing formulations,

but there was some consistency of exits across cases: (1) analysis of reciprocal role enactments in the therapeutic relationship, (2) engaging in alliance rupture-repair sequences, (3) exposure to intrusive jealous obsessions and response prevention to associated compulsions, (4) exposure to a hierarchy of independent activity outside the problem relationship and (5) assertiveness training. In keeping with CAT practice, changes were visually labelled as 'exits' on SDRs (Ryle & Kerr, 2002). In the final session of CAT, both patient and therapist produce 'goodbye letters' to reflect on the ending, name the dominant relational patterns with the therapeutic relationship, mark progress and highlight ongoing challenges. Each patient in this case series produced a goodbye letter.

Data analysis strategy

A combination of visual and statistical methods was applied to the ideographic measures. Time series graphs for each patient's primary measure of jealousy were fitted with separate trend lines for each phase. Tests for serial dependency determined significant autocorrelation in the ideographic time series data across each phase of therapy for all idiographic measures ($p < .05$). For all ideographic measures, autocorrelation was strongest at the first-order lag (Huitema & McKean, 1991), which then was used as a covariate in the subsequent ANCOVA that tested for differences between phases (Totterdell & Kellett, 2008). The ANCOVA had a single factor for study phase, which had three levels (assessment, treatment and follow-up phases). Post-hoc pairwise comparisons identified during which phases significant differences occurred. A Bonferroni correction was applied to control the familywise error rate and reduce the likelihood of type 1 errors when making multiple comparisons. Where significant overall intervention effects were found, effect sizes were calculated using non-regression based non-overlap metrics, to evaluate the magnitude of the intervention

effect (Horner et al. 2005). In order to calculate effect sizes, ideographic data from the treatment and follow-up phases were combined and compared to the baseline phase using the percentage of data points exceeding the median test (PEM; Ma, 2006). Estimates of effect size based on PEM used the following criteria as a guide (Wendt, 2009): PEM < 70% indicates a questionable or ineffective treatment, PEM = 70-90% indicates a moderately effective treatment, PEM > 90 % indicates highly effective treatment.

Nomothetic outcomes were evaluated regarding the degree and clinical significance of change. The degree of change was assessed with the reliable change index (RCI, Jacobson & Truax, 1991). The RCI tests for the degree of change required for change to be considered reliable, rather than that expected to occur by chance. Clinically significant change (CSC, Jacobson & Truax, 1991) occurs when outcomes shift in classification from 'caseness' to 'non-caseness.' Simultaneous reliable and clinically significant change is a credible index of recovery in routine practice (Barkham, Stiles, Connell & Mellor-Clark, 2012). An effect size for the case series was calculated for the PJQ, but it was not possible to complete RCI and CSC analysis, due to the lack of necessary psychometric foundations for the PJQ.

Results

Descriptive data and statistical outcomes for each ideographic measure are reported in Table 1. Exact p values for the main effect and post hoc comparisons, along with effect sizes on the ideographic measures are reported in Table 2. Table 3 reports the nomothetic outcomes with associated analysis of reliable and clinical change. The effect size (Cohen's d_+) on the PJQ in the case series was 3.05 indicating a large effect.

Patient 1. Figure 1 shows the graph of jealousy over the phases of CAT. There was an upward trend in jealousy during the baseline, which was reversed at the beginning of treatment (narrative reformulation). Improvements in jealousy continued over the follow-up period. There was a significant effect of phase regarding jealousy ($F(2,393) = 20.33$, $p < .01$), with significant improvements in jealousy during treatment and follow-up ($p < .01$) compared to baseline. Estimates of effect size indicated a highly effective intervention on jealousy (PEM = 90.78%). A significant effect of phase was found regarding watchfulness ($F(2,393) = 25.31$, $p < .01$), trust ($F(2,393) = 17.40$, $p < .01$), self-confidence ($F(2,393) = 18.66$, $p < .01$) and depression ($F(2, 393) = 9.24$, $p < .01$). The post-hoc comparisons found significant reductions in watchfulness and significant increases in trust and self-confidence between each phase of CAT ($p < .01$). Regarding depression, significant reductions were found in comparisons between follow-up and both baseline and treatment ($p < .01$). Effect sizes for watchfulness, trust and confidence indicated a highly effective intervention and for depression a moderately effective intervention. Reliable and clinically significant reductions in depression (BDI) and psychological distress (BSI-GSI) occurred between assessment and termination. No further significant psychometric change occurred between termination and follow-up. PJQ scores showed severe jealousy at assessment, mild jealousy at termination and no jealousy at follow-up. No physical assaults on the partner were reported at end of treatment or follow-up.

Insert figures 1-3 here please

Patient 2. Figure 2 graphs jealousy over the phases of CAT and demonstrates increasing jealousy during the baseline phase that was reversed at the beginning of treatment. Following termination, jealousy plateaued during the follow-up period.

There was a significant effect of phase on jealousy ($F(2, 140) = 10.09$, $p < .01$). There was no significant difference between baseline and treatment phases ($p > .05$), but significant reductions in jealousy between treatment and follow-up ($p < .01$) and baseline and follow-up ($p < .01$). Estimates of effect size indicated an ineffective intervention (PEM = 54.46%) on jealousy. A significant effect of phase of study was observed for self-consciousness, ($F(2,140) = 6.05$, $p < .01$), security ($F(2, 138) = 5.60$, $p < .01$) and body image ($F(2, 140) = 4.67$, $p < .05$). There were significant reductions in self-consciousness and poor body image and a significantly increased sense of security between baseline and follow-up (all $p < .01$). Significant improvements between treatment and follow-up phases were only significant on security ($p < .05$). Effect sizes for self-consciousness, security and poor body image suggested a moderately reliable intervention took place. Reliable and clinically significant reductions in depression (BDI), psychological distress (BSI-GSI) and interpersonal difficulties (IIP-32) occurred between assessment and termination. No further significant reductions occurred between termination and follow-up. Scores on the PJQ were 'severe' at assessment, 'mild jealousy' at termination and 'no jealousy' at follow-up. No physical assaults on the partner or stalking were reported at end of treatment or follow-up.

Insert tables 1 & 2 here please

Patient 3. Figure 3 graphs the ideographic jealousy outcome. This graph shows reduced variability in jealousy over treatment and follow-up. There was a significant effect of phase in terms of jealousy ($F(2,226) = 10.74$, $p < .01$). There was significantly less intensity to the jealousy during follow-up compared to baseline ($p < .05$), and treatment ($p < .01$). Effect size calculations estimated a highly effective intervention (PEM = 91.63%). A significant effect of phase was observed for rationality ($F(2,226) =$

7.73, $p < .01$), trust ($F(2,226) = 17.30$, $p < .01$), anxiety ($F(2,226) = 3.72$, $p < .05$) and depression ($F(2, 226) = 3.17$, $p < .05$). Significant reductions in anxiety and depression and a significant increase in the ability to be rational occurred between treatment and follow-up phases only ($p < .01$). In terms of the ability to trust, significant improvements occurred during follow-up compared to baseline ($p < .01$). Estimates of effect sizes ranged from PEM = 68.46% for trust (indicating an ineffective intervention) to PEM = 90.15% for the ability to be more rational (indicating a highly effective intervention). Anxiety and depression ideographic outcomes indicated a moderately effective intervention. Reliable and clinically significant reductions in depression (BDI) occurred between assessment and termination, with no further change between termination and follow-up. In term of psychological distress (BSI-GSI), Patient 3 continued to experience clinically significant levels of distress at termination and follow-up, despite reductions meeting the criteria for reliable change. Regarding interpersonal functioning (IIP-32), clinically significant and reliable improvements occurred between assessment and follow-up. The PJQ showed a reduction in jealousy from 'moderate' at assessment to 'mild' at termination, with 'no jealousy' evident at follow-up. Violent behavior and stalking had stopped by the end of treatment and did not occur during follow-up.

Insert table 3 here please

Discussion

In this methodologically complex small case series analysis of delivering CAT for OMJ, the results suggest that CAT as an integrative psychotherapy was consistently effective in treating the pathological jealousy. It is worth noting that two of the three

cases had been unresponsive to previous psychological interventions. The extensive time-sampling used in the method and the range of analyses used to assess outcome compares favorably to previously conducted OMJ case series (e.g. Cobb & Marks, 1979; Bishay et al. 1989). With regards to the primary nomothetic measure of jealousy (PJQ), reductions over treatment occurred for all patients, with continued progress evident at follow-up (i.e. all cases were classed as 'not jealous' at follow-up). The effect size for the PJQ was large suggesting an effective treatment. Additionally, each patient met the criteria for a reliable and clinically significant reduction in depression (BDI-II), as did 2 out of the 3 patients in terms of psychological distress (BSI-GSI) and interpersonal functioning (IIP-32) between assessment and the end of treatment. At follow-up, all cases were in the 'minimal depression' BDI-II category (Beck et al. 1996). Psychometric outcomes would suggest that treatment was effective, there was little sign of relapse over the follow-up period with some evidence that improvement continued during follow-up. Continuation with progress and application/practice of exits was encouraged in the goodbye letters, as this is standard CAT practice **(**Turpin, Adu-White, Barnes, Chalmers-Woods, Delisser, Dudley & Mesbahi, 2011). Importantly considering the risk to others that OMJ often poses (Mullen & Maack, 1985), each patient reported at end of treatment and again at follow-up that violence, assaults and stalking had all ceased.

Results from the ideographic analyses generally mirrored the nomothetic outcomes, indicating that CAT had effectively treated the morbid jealousy. A 'highly effective' treatment outcome on the primary ideographic jealousy measure was found for 2/3 cases. Although PEM analysis of patient 2's jealousy measure indicated an 'ineffective treatment,' the high variability in jealousy during the treatment phase may have influenced the PEM result, which is reliant on the degree of non-overlapping data between phases (Wendt, 2009). Inspection of the jealousy outcome graphs shows clear

reductions during treatment, in comparison to increasing jealousy trends during baseline phases for 2 of the 3 cases. Very few OMJ outcome studies have captured the follow-up period in any detail and the current study has usefully illustrated the absence of jealous relapse during follow-up.

The matching of a primary ideographic measure for jealousy across the cases (slightly reworded to ensure patient-centeredness) has thrown some light on the shape of change in jealousy during CAT across the cases. The inclusion of ideographic measures to generate individual patient time series data within the overall case series (Towgood, et al. 2009) particularly highlighted the role and impact of narrative reformulation. Early narrative reformulation is a central feature of the CAT model (Hamill, Reid & Reynolds, 2008) and the validity of this process has been previously evidenced (Bennett & Parry, 1998). Therefore, the early collaborative generation of a shared and agreed understanding of the developmental origins and contemporary maintainers of jealousy appeared to signal sudden gains in terms of reduced jealousy. Narrative reformulation can evoke both strong positive and negative emotional responses from patients (Rayner, Thompson & Walsh, 2011) and this was the case here, with patients feeling both supported and challenged. The current study therefore challenges the evidence that narrative reformulation creates little impact on symptoms (Evans & Parry, 1996; Shine & Westacott, 2010).

Further evidence of the effectiveness of CAT within the case series was the responsiveness to treatment across a wide range of jealousy-related ideographic measures, such as watchfulness, trust and self-confidence. Effect sizes typically indicated a moderate or highly effective treatment for many such ideographic measures. Clinically, as all SDRs shared a common state of ‘enmeshment’ within problem relationships (Goldenberg & Goldenberg, 2013), a key exit was therefore emphasizing developing a life outside of (whilst retaining a close and supportive relationship with)

the current partner. In the cases that measured interpersonal trust, there was evidence of significant improvements in the ability to trust partners over time, which would be indicative of establishing a protective factor against future jealousy (Hicks & Cornille, 1993).

Given that OMJ patients are hard to engage and difficult to treat (Cobb, 1979), each patient attended all sessions and the degree and stability of the progress achieved over the relatively short treatment contracts is of note. As CAT uses an integrative and relational model (Ryle & Kerr, 2002) and OMJ has unique relational features (Anderson, 2003), so CAT appears particularly well-suited to formulating and intervening with OMJ and also managing the (often) difficult therapeutic relationships that ensue. Common change methods during treatment sessions were analysis of reciprocal role enactments within the therapeutic relationship (Ryle & Kerr, 2002) and associated rupture-repair sequences (Daly, Llewellyn, & McDougall, 2010), as patients often experienced the therapist in the transference as they had original care givers and/or current partners (e.g. critical and abandoning). This analytical aspect of CAT therefore clearly differentiates it from the other therapies that have been tried and tested with OMJ. As CAT is an integrative model, it is not possible to isolate and test the efficacy of its analytic component. Diligent 'endings' work was also conducted due to jealousy reflecting a deep fear of loss of the relationship to an assumed rival (Marazziti et al, 2003). In all cases, consistent with CAT theory, both patient and therapist wrote and exchanges goodbye letters that summarized change, reflected on the therapeutic relationship, the ongoing relationship challenges and defined how to maintain progress. The lack of evidence of relapse in jealousy over follow-up would suggest that such letters were helpful.

There are several limitations to the current research that also highlight future directions for OMJ outcome research. The lack of an appropriately validated primary

outcome measure of OMJ limits the internal validity of any study and development of such an outcome measure is a key future research goal. The small sample size of the case series is an issue and future case series should concentrate on recruitment of larger samples, use longer follow-up periods and matched treatment contracts. The ideographic measures could have been usefully supplemented with behavioral incidence measures of violence, aggression and stalking. The addition of a measure of the therapeutic alliance and/or session impact would have enhanced the methodology. Previous CAT research has used partner ratings to evaluate outcome in OMJ (Kellett & Totterdell, 2013) and the current case series would have also benefitted from this (e.g. patients were more trusting, but did partners feel more trusted?). Testing of the brief 8-session version of the CAT model with OMJ is indicated. Interviewing the participants on their experience of therapy would have been useful. Given the strong dependent traits of each patient, use of the SCID-II (First, Gibbon, Spitzer, Williams & Benjamin, 1997) would have enabled formal assessment of personality disorder. Whilst the fact that all cases were treated by the same therapist provided consistency, the results may have been an artefact of a 'therapist effect' (Cella, Stahl, Reme & Chalder, 2011). The internal validity of the methodology would have been improved with the addition of the CCAT measure of fidelity to the CAT model (Bennett & Parry, 2004). Finally, the SCED methodology itself could have had greater internal validity through the use of, for example, a withdrawal type design (e.g. A/B/A/B).

In conclusion, the current study has reported outcomes from three successfully treated cases of OMJ with CAT - all patients appeared to no longer be experiencing OMJ by follow-up and this was a change in a previously chronic problem for each case. Because jealousy is a basic and common emotion (Buss, 2013) then patients continued to experience jealousy – but to a lesser extent and without it driving any characteristic compulsive behaviors, such as checking and interrogating. It was useful to normalize

non pathological jealousy as a common emotion at follow-up. A particular aspect of the CAT model (early narrative reformulation) has emerged from the graphing of time series data as a key moment of change. Integrative psychotherapies appear particularly well suited to treating OMJ because the need to intervene across the range of jealous symptoms. This study makes a valuable contribution to the currently limited evidence base for treating OMJ with integrative psychotherapies. Future more controlled research is now also clearly indicted.

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Table 1; ideographic measures description, phase means and associated analysis

Patient	Measure	Measure wording	Baseline (n)	Treatment (n)	Follow-up (n)	Baseline Mean (SD)	Treatment Mean (SD)	Follow-up Mean (SD)	F Value
Patient 1	Measure 1	Today I have felt… Not Jealous/Overwhelmed by jealousy	42	214	141	7.2 (1.2)	5.1 (1.4)	2.9 (1.6)	20.33**
	Measure 2	Today I have felt… Relaxed/Intensely observant	42	214	141	8.86 (0.68)	5.35 (1.62)	3.04 (1.75)	25.31**
	Measure 3	Today I have felt… Trusting/Looking for evidence/theorizing	42	214	141	8.12 (2.42)	5.61 (1.57)	3.16 (1.85)	17.40**
	Measure 4	Today I have felt…Unassertive/Confident†	42	214	141	2.55 (1.55)	4.99 (1.89)	5.46 (2.27)	18.66**
	Measure 5	Today I have felt… Happy/Hopeless	42	214	141	7.29 (1.88)	6.01 (1.80)	3.96 (2.49)	9.24**
Patient 2	Measure 1	Today I have felt…No jealousy/Consumed by jealousy	44	66	35	4.81 (1.93)	5.35 (1.85)	2.17 (0.95)	10.09**
	Measure 2	Today I have felt…No self confidence/completely confident†	43	66	35	4.41 (1.91)	6.05 (2.43)	7.94 (0.68)	6.05**
	Measure 3	Today I have felt…Totally secure/scared of being on my own	43	64	35	5.05 (2.02)	3.81 (2.70)	1.77 (0.55)	5.60**
	Measure 4	Today I have felt…Happy with my body/Hate my body	44	66	35	5.00 (2.04)	4.31 (2.60)	2.14 (0.65)	4.67*

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

Table 1 continued

Patient	Measure	Measure wording	Baseline (n)	Treatment (n)	Follow-up (n)	Baseline Mean (SD)	Treatment Mean (SD)	Follow-up Mean (SD)	F Value
Patient 3	Measure 1	Today I have felt…No jealousy/Full of jealousy	27	133	70	3.19 (1.59)	3.36 (1.08)	2.16 (0.61)	10.74**
	Measure 2	Today I have felt… Rational/Theorizing scenarios	28	133	70	3.14 (1.96)	3.35 (1.32)	2.23 (0.62)	7.73**
	Measure 3	Today I have felt…Disbelieving/Trusting†	28	133	70	4.37 (1.82)	5.28 (1.70)	7.70 (0.71)	17.30**
	Measure 4	Today I have felt…Calm/Anxious	28	133	70	3.07 (1.80)	3.74 (1.52)	2.87 (1.49)	3.72*
	Measure 5	Today I have felt… Down and depressed/Happy†	28	133	70	6.59 (1.47)	6.52 (1.46)	7.30 (0.95)	3.17*

Note: † Direction of expected change is reversed in measures where higher ratings indicate improvement. * $p < .05$, ** $p < .0$

Table 2; effect sizes on ideographic measures for treatment of OMJ with CAT

Patient	Measure concept	Measure wording	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
Patient 1	Jealousy	Today I have felt… Not Jealous/Overwhelmed by jealousy	.00	90.78**	.00	.00	.00
	Watchfulness	Today I have felt… Relaxed/Intensely observant	.00	96.34**	.00	.00	.00
	Trust	Today I have felt… Trusting/Looking for evidence/theorizing	.00	95.21**	.00	.00	.00
	Self-confidence	Today I have felt…Unassertive/Confident†	.00	90.42**	.00	.00	.00
	Depression	Today I have felt… Happy/Hopeless	.00	81.12*	.31	.00	.00
Patient 2	Jealousy	Today I have felt…No jealousy/Consumed by jealousy	.00	54.46	1.00	.00	.00
	Self-confidence	Today I have felt…No self-confidence/completely confident†	.00	81.19*	.19	.00	.04
	Secure	Today I have felt…Totally secure/scared of being on my own	.01	81.19*	.37	.00	.05
	Body image	Today I have felt…Happy with my body/Hate my body	.01	74.26*	.96	.01	.05

Note: † Direction of expected change in reversed in measures where higher ratings indicate improvement (ie A<B). * indicates a moderately effective intervention. ** indicates a highly effective intervention.

Table 2 continued

Patient	Measure concept	Idiographic Wording	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
Patient 3	Jealousy	Today I have felt…No jealousy/Full of jealousy	.00	91.63**	1.00	.01	.00
	Rational	Today I have felt… Rational/Theorizing scenarios	.00	90.15**	1.00	.05	.00
	Trust	Today I have felt…Disbelieving/Trusting†	.00	68.47	.12	.00	.00
	Anxiety	Today I have felt…Calm/Anxious	.03	78.33*	.61	1.00	.02
	Depression	Today I have felt… Down and depressed/Happy†	.03	78.33*	1.00	.19	.03

Note: † Direction of expected change in reversed in measures where higher ratings indicate improvement (ie A<B). * Indicates a moderately effective intervention. ** Indicates a highly effective intervention.

Table 3; Psychometric outcomes for CAT for OMJ

Patient	Measure	Caseness Cutoff	RCI	CSC	Clinical Sample Mean (SD)	Non-clinical Sample Mean (SD)	Reliability Coefficient	Score at Assessment (T Score)	Score at Termination (T Score)	Score at Follow-up (T Score)
Patient 1	BDI	17.00	7.84	14.99	27.44 (10.00)	7.65 (5.90)	.92	**24.00**	3.00	1.00
	BSI	63.00	0.63	0.71	1.40 (0.72)	0.35 (0.37)	.90	**1.25 (74.00)**	0.25 (54.00)	0.00 (33.00)
	IIP-32	1.50	0.70	1.18	1.47 (0.65)	0.95 (0.52)	.85	0.69	0.21	0.16
	PJQ	50.00	-	-	-	-	-	**123.00**	49.00	31.00
Patient 2	BDI	17.00	9.41	15.99	32.96 (12.00)	7.65 (5.90)	.92	**41.00**	2.00	0.00
	BSI	63.00	0.63	0.71	1.40 (0.72)	0.35 (0.37)	.90	**2.32 (78.00)**	0.19 (48.00)	0.04 (39.00)
	IIP-32	1.50	0.70	1.18	1.47 (0.65)	0.95 (0.52)	.85	**1.69**	0.78	0.56
	PJQ	50.00	-	-	-	-	-	**113.00**	43.00	33.00
Patient 3	BDI	17.00	9.41	15.99	32.96 (12.00)	7.65 (5.90)	.92	**38.00**	16.00	12.00
	BSI	63.00	0.61	0.49	1.20 (0.70)	0.25 (0.24)	.90	**3.06 (80.00)**	**2.3 (80.00)**	**1.13 (72.00)**
	IIP-32	1.50	0.75	1.26	1.59 (0.74)	1.02 (0.54)	.85	**1.94**	**1.71**	1.19
	PJQ	50.00	-	-	-	-	-	**72.00**	30.00	25.00

Note: Reliability coefficients are based on estimates of internal consistency for the BDI and IIP-32 and test-retest reliability for the BSI. RCI's are calculated using standard deviations matched for gender and clinical presentation where possible (I.e. for severity of depression on the BDI). All CSC indices were calculated using gender matched clinical and non-clinical norms. Items in bold indicate clinical caseness. For the BSI caseness is represented as a T score. Norms for the BSI are taken from Derogatis, (1993), for the BDI from Beck Steer and Brown, (1998) and the IIP-32 from Barkham, Hardy and Startup, (1996). Average interpersonal difficulties are reported for the IIP-32 and scores on the global severity index for the BSI.

Figure 1. Time series data for Patient 1's primary jealousy measure

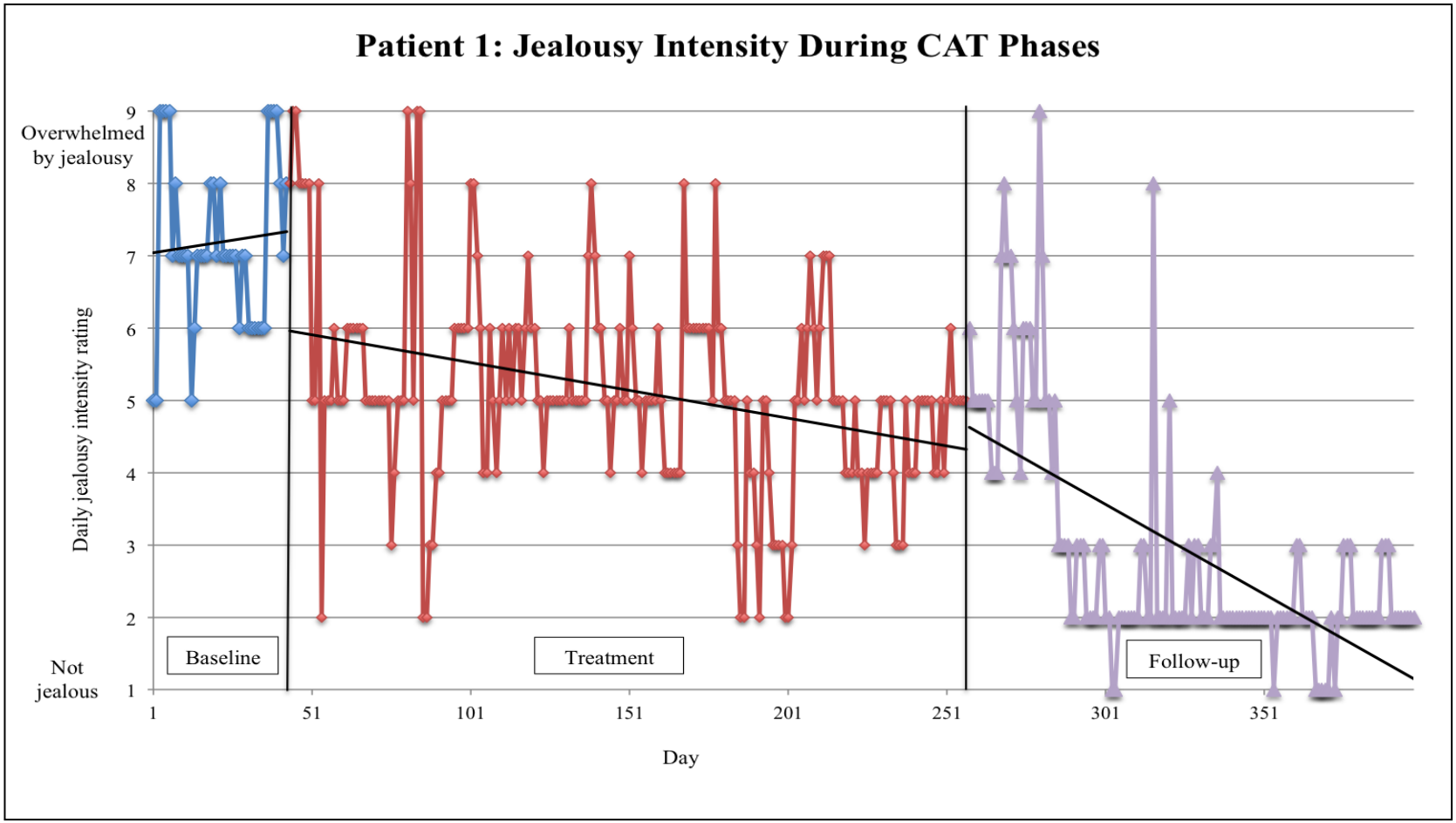

Figure 2. Time series data for Patient 2's primary jealousy measure.

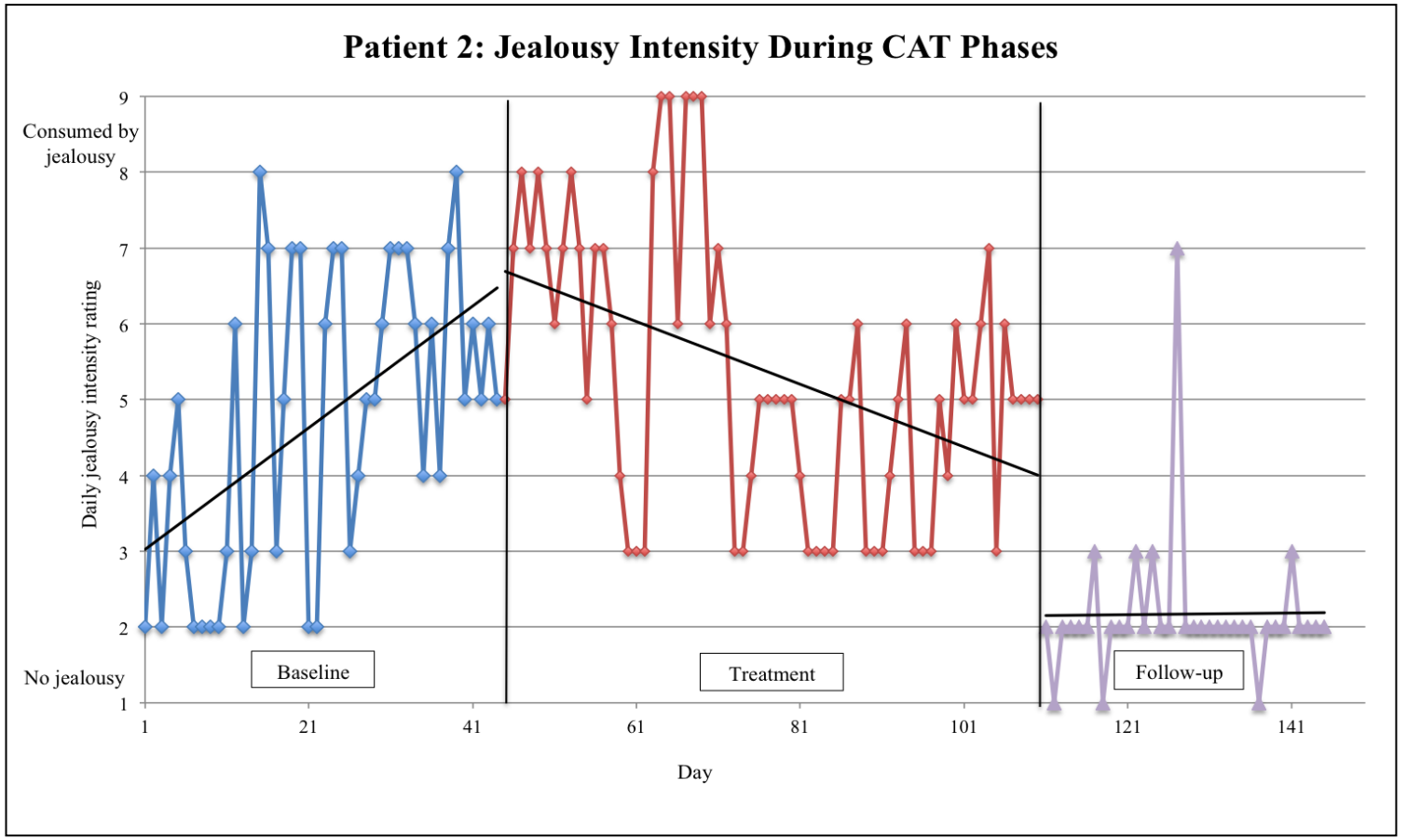

Figure 3. Time series data for Patient 3's primary jealousy measure.