A Single-Subject Evaluation of the Treatment of Morphing Fear

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Abstract

We present a single-subject prospective outcome study of a man with severe morphing fear and long history of OCD who was not helped by previous interventions, and who received an adapted form of cognitive behavior therapy (CBT) as part of this study. Treatment consisted of a cognitively focused approach tailored to address his fear of morphing and included developing a stronger sense of self-stability. We describe the details of the case, the treatment protocol, and the therapeutic outcomes as assessed over 36 weeks by questionnaires, rating scales, and semistructured interviews. The intervention was effective in eradicating the patient's morphing fears and reducing other symptoms of OCD, anxiety, and depression. The presented case illustrates the need to appropriately conceptualize, assess, and address the specific nature of morphing fear symptoms in treatment.

Keywords: morphing fear; transformation obsession; mental contamination; obsessive-compulsive disorder; treatment efficacy

The current National Institute for Health and Care Excellence (NICE) guidelines (2005) recommend cognitive behavioral therapy (CBT) incorporating exposure and response prevention (ERP) for the treatment of obsessive-compulsive disorder (OCD) in the U.K. Unfortunately, there remains considerable scope for improvement in treatment efficacy, with various studies showing that, following the recommended treatment for OCD, only up to one-quarter of patients demonstrate complete recovery (Abramowitz, Franklin, & Foa, 2002; Boschen, Drummond, & Pillay, 2008; Eddy, Dutra, Bradley, & Westen, 2004; Fisher & Wells, 2005). Some evidence suggests that treatment outcomes for contamination-related OCD in particular are modest; many contamination-fearful patients do not achieve symptom relief or commonly relapse following initial successful treatment (Coelho & Whittal, 2001, cited in Rachman, 2004; McLean et al., 2001). Given that contamination fears account for up to 55% of people with OCD (Calamari et al., 2004; Foa & Kozak, 1995; Rachman, 2004; Rachman & Hodgson, 1980; Rasmussen & Eisen, 1992), increasing success rates of contamination fear treatment is imperative.

One potential explanation for the poor outcomes of contamination fears is the failure to conceptualize these symptoms adequately. This may in part be due to overattention paid to contact contamination and overlooking contamination fears that arise in the absence of physical contact (i.e., mental contamination; Fairbrother & Rachman, 2004; Rachman, 2006; Radomsky & Elliott, 2009) and those that may present as more obscure symptoms (i.e., morphing fears; cf. Rachman, 2006; Volz & Heyman, 2007). It has previously been suggested that different OCD symptom profiles may require tailored CBT interventions to increase efficacy of treatment (Freeston et al., 1997; Keeley, Storch, Merlo, & Geffken, 2008; Sookman et al., 2005; Williams, Salkovskis, Forrester, & Allsopp, 2002). NICE guideline-recommended treatment for OCD may need adaptation for mental contamination and morphing fears to specifically target the key presenting symptoms of these OCD manifestations.

Mental contamination is defined by feelings of dirtiness and urges to wash that arise in the absence of direct contact with a noxious substance or following contact with something others would not deem contaminating (Rachman, 1994, 2004, 2006). Morphing fear, a type of mental contamination (Coughtrey et al., 2013; Rachman, 2006; Zysk, Shafran, Williams & Melli, 2015), involves worries that one may become tainted by and acquire unwanted characteristics of others through contagion. Patients commonly interpret this fear as becoming contaminated and harmed by others' qualities (Coughtrey et al., 2012; Monzani et al., 2015; Rachman, 2006), thereby bearing resemblance to other contamination fears, although overt washing/cleaning compulsions may or may not present. Morphing fears commonly present as avoidance of a specific person or group who may be deemed inferior or undesirable, with compulsions presenting in overt (e.g., washing, checking, reassurance seeking) and covert (e.g., mental cleansing, neutralizing) forms. Unlike with contact contamination, the source of mental contamination and morphing fears is cognitive; for instance, morphing fears can be elicited through looking at, hearing, or thinking about an undesirable person. Additionally, the resulting feelings of contamination are internal and psychological. As such, the site of contamination is not physically accessible, and washing is misdirected and often does not bring relief (Rachman, 2006).

The prominent symptom in morphing fear is an underlying concern about magical transformation, a cognitively based fear grounded in a cause-and-effect distortion that patients recognize as irrational. The intrusive recurring nature of the thoughts has led morphing fears to also be referred to as "transformation obsessions" (Monzani et al., 2015; Volz & Heyman, 2007) and these symptoms have recently been found to load onto the forbidden thoughts dimension of the Children's Yale-Brown Obsessive-Compulsive Scale checklist (Scahill et al., 1997) in children (Monzani et al., 2015). The cognitive nature of morphing fears is also reflected in patients' unstable sense of self and concurrent low self-esteem (cf. Rachman, 2006). People with OCD hold uncertain self-perceptions and are prone to experiencing ego-dystonic intrusions as personally threatening to

their sense of self (Bhar & Kyrios, 2007; Ferrier & Brewin, 2005; Guidano & Liotti, 1983; Lipton, Brewin, Linke, & Halperin, 2010). Such intrusions may lead some people to fear they may become someone undesirable (O'Connor et al., 2005; Wu, Aardema & O'Connor, 2009), which may help explain morphing fears. Previous research has also shown links between feared self-beliefs and self-doubt in OCD (Nikodijevic, Moulding, Anglim, Aardema, & Nedeljkovic, 2015). In addition, self-esteem—which is thought to be linked with self-uncertainty (Campbell, 1990)—may be affected by the exaggerated importance of intrusions about patients' identity (Ferrier & Brewin, 2005) and morality (Shafran, Thordarson, & Rachman, 1996). As such, these cognitions may lead patients to engage in compulsions such as checking and neutralizing to reduce the doubt and threat and to correct any perceived deviation from the actual self (cf. Bhar & Kyrios, 2007; Guidano & Liotti, 1983). Morphing fears are thought to be uncommon, but symptoms have been found to exist in 10% of youth with OCD.

Three treatment recommendations for morphing fears have been proposed: exposure and response prevention (ERP; Hevia, 2009), standard CBT (Monzani et al., 2015; Volz & Heyman, 2007), and theory-driven cognitively focused CBT (Rachman, 2006; Rachman, Coughtrey, Shafran, & Radomsky, 2015). Hevia (2009) described a retrospective case of a male with morphing fears who was successfully treated with a course of ERP. Volz and Heyman (2007) and Monzani et al. (2015) suggested the same application of CBT for morphing fear as for other symptoms of OCD; this approach was used for children with OCD who were additionally retrospectively found to have had morphing fears, and showed comparable success in their general OCD reduction as those with OCD not having reported any morphing fears (Monzani et al., 2015). However, given the cognitive nature of morphing fears, Rachman (2006; Rachman et al., 2015) argued that morphing fears require a cognitively focused CBT approach similar to that for mental contamination. A cognitive focus allows for idiographic treatment to address specific OCD symptom presentation and target underlying cognitive processes that contribute to their maintenance (cf. Rachman, 2003; Whittal,

Robichaud, & Woody, 2010; Wilhelm et al., 2009). This treatment has since been shown to be effective (cf. Coughtrey et al., 2013; Rachman et al., 2015). The concept of the self is of increasing interest in the understanding and treatment of OCD and psychopathology in general (Bhar, Kyrios & Horndern, 2015; Kyrios, 2016) and may be particularly important in morphing fears; techniques aimed to target maladaptive cognitions and key underlying beliefs and working with the patient to develop a stronger sense of self-stability could prove useful in alleviating morphing fear symptoms (Rachman, 2006; Rachman et al., 2015).

From the morphing fear research to date, Coughtrey et al.'s (2013) study is the only one to have utilized a prospective design; the retrospective nature of the research by Hevia (2009), Volz and Heyman (2007), and Monzani et al. (2015) does not permit for confidence in their findings. A further critical limitation of published work to date rests in that reduction of morphing fears was not systematically measured so it is unclear to what extent treatment gains were morphing-fear specific.

The aim of the current study is to evaluate a theory-driven cognitive behavioral intervention specifically focused on morphing fears based on Rachman's (2006; Rachman et al., 2015) treatment recommendations, and with a heavy emphasis on working to build a robust sense of self. It is hypothesized that this specialized treatment would result in clinically significant decreases in morphing fears, mental contamination, obsessive-compulsive (OC) symptoms, anxiety, and depression. This study uses a single-subject multiple baseline design to test the hypotheses. Single-subject designs are critical in testing theoretically derived interventions and establishing evidence-based practice (Agras & Berkowitz, 1980; Horner et al., 2005; Kazdin, 1982; Salkovskis, 2002), and are particularly important where there have been previous treatment failures, when no specific treatments exist, and in investigations involving unusual or rare phenomena (Blampied, 1999; Kazdin, 1982). Single-subject designs are rigorous methods for evaluating treatment efficacy (Horner et al., 2005) and are thought to provide the greatest understanding of treatment effects (Barlow, 1981; Shadish, Cook, & Campbell, 2002; Valsiner, 1986). The existence of a new valid

and reliable measure to assess morphing fears (Morphing Fear Questionnaire; Zysk et al., 2015) allows the current research to improve on past treatment studies and provide unequivocal support for symptom change. The use of this measure also allows for an objective, clear, and complete definition of morphing fears, thereby meeting the three criteria put forth by Hawkins and Dobes (1977).

Methods

Design

This was a single-subject evaluation of a theory-driven intervention. An A-B design was used in which symptoms of one patient were assessed over 36 weeks: symptoms were monitored at baseline before the intervention was applied (9 weeks) and throughout treatment (24 weeks) until after its completion (2.5 weeks posttreatment). This study received NHS (10/H0505/61) and university ethical approval.

Participant

James[1] was a male in his twenties who was referred by a mental health practitioner. The referral mentioned James's OCD symptoms (e.g., compulsive washing and checking), symptoms of mental contamination (e.g., feelings of dirtiness following conflict or guilt), and symptoms which suggested possible morphing fears (e.g., worries that he will be weakened as a person). Upon assessment, the patient was confirmed to have a primary diagnosis of OCD and comorbid depression, mild social anxiety disorder, and mild generalized anxiety disorder. He was found to have morphing fears that caused significant distress and interference. He was not actively psychotic

[1] Personal details have been changed to protect the patient's identity. Details of the case (with the patient referred to as "Joanne") have been presented elsewhere (Shafran, Zysk & Williams, in press).

or suicidal, nor was he receiving any concurrent psychological treatment; thus, he was suitable for this treatment. James had a 15-year history of OCD. Prior treatment had included a handful of face-to-face and phone sessions of counseling, and some exposure and response prevention, all of which James described as very unhelpful. He had been previously prescribed fluoxetine for depression and anxiety on two occasions. At the time of the assessment and treatment James was not taking any psychotropic medications.

James presented with severe morphing concerns related to a fear of losing his intelligence and becoming an immoral person, which he could trace back to childhood. He feared he could become "infected with unseeable germs" and change to be like another person through physical contact or proximity, or through a negative atmosphere created by a person or group. He described such infection to start in his head and spread through his body like cancer. The feared changes could involve physical (e.g., becoming less attractive or disabled), moral (becoming violent, sexist, racist, or "sleazy"), emotional (acquiring a negative mood or becoming insecure or pathetic), or intellectual transformations (adopting superstitions, shallow opinions, or viewpoints he did not endorse). Additionally, as a result of intrusive thoughts that he could become diminished as a person, James felt that he needed to maximize his potential and every intellectual and social opportunity. When James felt diminished or experienced low mood, stress, or embarrassment, he felt he could physically change. In particular, he worried he could become shorter in stature—that he could literally become a smaller person. James was also concerned about the possibility of reverse morphing. He feared he could infect others with his depression and beliefs, and that others (e.g., homeless people and "chavs") could take away his positive traits for their own use.

The patient was preoccupied by these distressing fears a large proportion of the time and engaged in avoidance and compulsions that were primarily geared at stopping him from "losing himself." Compulsions involved hand-washing, performing actions in 3s, touching "safe" objects, repetition of information, and checking compulsions comprising thinking of three personal facts

within a set time limit to verify he was still himself. Due to fears of being wrong or taken off-guard in a conversation and thereby appearing stupid, James avoided making an argument unless he was confident he was correct, and he reported feelings of panic in some social situations. James avoided engaging in banal conversation, watching "rubbish telly," and exposing himself to shallow opinions or situations that fail to stimulate him as he believed these could contaminate him by eroding his intelligence or potential and making him dull and uninteresting. Such symptoms caused him embarrassment as he was concerned that he came across as pretentious. James's need to excel in his work was in part driven by this fear; he felt his only salvation was to be able to pursue higher career goals and to be in the company of other critically thinking intellectuals. Ironically, one significant impact of James's morphing fears related to him not doing well in his work. This caused him great distress and anxiety, and contributed to his feelings of depression and hopelessness. Feelings of depression, in turn, provided support for James's belief that he could acquire negative mood and self-pity through morphing, and thereby contributed to fear maintenance. In a similar manner, James's disorganization and lack of routine and sleep caused him to look and feel tired, which he sometimes took as evidence of change. James additionally had perfectionistic standards that helped maintain the disorder.

An individualized formulation based on a cognitive-behavioral model of OCD (Whittal, Woody, McLean, Rachman, & Robichaud, 2010) and theory of mental contamination (Rachman, 2006) was drawn up between James and his therapist in the first session, which depicted triggers, symptoms, appraisals, and specific mechanisms thought to be maintaining his disorder (see Figure 1).

Materials

Morphing Fear Questionnaire (MFQ; Zysk, Shafran, Williams, & Melli, 2015)

This brief 13-item self-report measure assesses for the presence and severity of morphing fears on a 5-point Likert scale from 0 (*not at all*) to 4 (*very much*). Respondents are asked to provide a short explanation or specific example for any two questions with which they agree much/very much. This unidimensional measure has shown excellent internal consistency in an OCD sample (α = .90), good temporal stability (r = .73), and excellent construct validity (e.g., convergence with the OCI-R and VOCI-MC, and divergence with BDI-II and BAI). The MFQ has shown evidence of criterion-related validity in its ability to discriminate between groups reporting OCD, anxiety, depression, and no OCD.

Vancouver Obsessional Compulsive Inventory–Mental Contamination Scale *(VOCI-MC; Rachman, 2006)*

This 20-item self-report measure assesses presence of mental contamination using items such as "I often feel dirty inside my body" rated on a 5-point Likert scale (0–4). The VOCI-MC has excellent internal consistency (Cronbach's α = .93−.97), good convergent validity with the contamination subscale of the VOCI (cf. Thordarson et al., 2004), and divergent validity with symptoms of depression on the BDI-II, and good discriminant validity between those with contamination OCD and other groups (Radomsky, Rachman, Shafran, Coughtrey, & Barber, 2014). An OCD contamination-fearful sample had a mean score of 30.6, while a nonclinical sample had a mean of 8.3 (Radomsky et al., 2014).

Obsessional Compulsive Inventory–Short Version (OCI-R; Foa et al., 2002)

The OCI-R assesses for OCD symptoms on 6 subscales using 18 items rated on a 5-point Likert scale from 0 (*not at all distressed/bothered*) to 4 (*extremely distressed/bothered*). This self-report measure is reported to have good to excellent internal consistency, temporal stability, and convergent validity (e.g., washing subscale: Cronbach's α = .86; r_s = .86; strong correlation with Rachman and Hodgson's 1980 Maudsley Obsessive-Compulsive Inventory washing subscale, r_s =

.78, respectively). The means for OC and nonclinical samples have been reported to be 28.0 and 18.8, respectively.

Beck Anxiety Inventory (BAI; Beck & Steer, 1990)

The BAI lists 21 symptoms of anxiety on which participants rate their symptom severity using a 4-point scale (from 0 = *not at all* to 3 = *severely*). The BAI is widely used in research and clinical practice, and has excellent internal consistency (Cronbach's α = .94) and acceptable test-retest reliability (r = .67; Fydrich, Dowdall, & Chambless, 1992). The nonclinical mean for this measure has been reported to be between 6.6 (Gillis, Haaga, & Ford, 1995) and 13.4 (Creamer, Foran, & Bell, 1995) while the clinical mean has been found to be 25 in those with a primary anxiety disorder (Beck, Epstein, Brown, & Steer, 1988).

Beck Depression Inventory−II (BDI-II; Beck, Steer & Brown, 1996)

The 21-item self-report measure assesses the presence and severity of the affective, cognitive, motivational, psychomotor, and vegetative components of depression. Items are scored from 0 (*absent*) to 3 (*severe*). The BDI-II has shown excellent internal consistency (Cronbach's α = .91) and test-retest reliability (r = .93), and is one of the most widely used measures for assessing depression in research and clinical contexts. The nonclinical mean has been reported to be between 8.4 (Whisman, Perez, & Ramel, 2000) and 12.6 (Beck et al., 1996), while the clinical mean for those with depression has been reported at 21.9 (Beck et al., 1996).

Anxiety Disorders Interview Schedule (ADIS−IV, Brown, Di Nardo, & Barlow, 1994)

This is a widely used semistructured diagnostic interview with excellent psychometric properties. It assesses current episodes of mental health disorders such as anxiety and depression in accord with DSM−IV criteria (APA, 1994).

Yale−Brown Obsessive Compulsive Scale (Y−BOCS; Goodman et al., 1989a)

This semistructured interview employs both a checklist to assess the nature of the disorder and a 10-item 0-4 Likert scale to measure the severity of obsessions and compulsions. It has established excellent reliability and validity (Goodman et al., 1989a, 1989b). The Y-BOCS is sensitive to treatment effects and is considered the gold-standard assessment measure in treatment outcome research (Frost, Steketee, Krause, & Trepanier, 1995; Taylor, 1995). There has been no established nonclinical normative data for the Y-BOCS (Fisher & Wells, 2005); however, it is generally accepted that a total score of ≤12 is indicative of a functional, nonclinical state (cf. Fisher & Wells, 2005; e.g. McLean et al., 2001). A total score of ≥16 signifies clinically symptomatic levels and is typically used as entry criteria for treatment trials (Tolin, Abramowitz, & Diefenbach, 2005).

Standardized Interview Schedule–Contamination (Shortened Version; Rachman, 2006)

This interview assesses for the presence and features of contact and mental contamination, with two questions specifically assessing for the presence of morphing fears.

Visual Analogue Scale (VAS)

A series of 10 cm VASs were used to measure self-report current ratings of internal dirtiness, general dirtiness, washing/neutralizing urges, and anxiety. Each scale was anchored with the labels *Not at all* to *Extremely*. The VASs were used as session-by-session measures given that such measurement has been shown to improve outcome (cf. Lambert, 2009; Lambert et al., 2001). Additionally, VASs are reliable and valid (Reips & Funke, 2008), help rule out threats to internal validity related to assessment (cf. Kazdin, 1982), and are recognized to be sensitive to clinical change (cf. McCormack, Horne, & Sheather, 1988).

Procedure

James was seen within 15 days of his referral for an assessment with a clinical psychologist (RS, the second author) as part of a research study. He completed a battery of questionnaires (i.e., the MFQ, VOCI-MC, OCI-R, BAI, and BDI-II) the day before the initial assessment, which he was asked to bring to the appointment. James provided written informed consent to taking part in the research, being audiotaped in treatment and assessment sessions, and for his case to be presented in in any publications.

Clinical Assessment

An initial detailed 90-minute clinical assessment was conducted with the therapist following the adaptations put forth by Rachman (2006; Rachman et al., 2015) to get a thorough understanding of the main presenting problem, its history, and onset. This included using tools specific to assessment of morphing fears (MFQ) and mental contamination (e.g. VOCI-MC); determining the source(s) of feelings of contamination and morphing fear triggers; determining the feared/believed mechanism of morphing and assessing the personal vulnerability to contamination and morphing;

and understanding specific maintaining mechanisms of the fear and how the patient makes sense of the problem and its maintenance.

Independent Research Assessments

Regular research assessments were held 8–11 weeks apart by an experienced independent assessor (EZ, the first author). The timing of the start of the intervention was randomized from a selection of 3 possible weeks within 2 months. The independent assessor was blind to the treatment start date and thus also to the stage of the intervention at each assessment. The initial research assessment (Week 0) was conducted 1 week after the clinical assessment and comprised the ADIS-IV, Y-BOCS, Standardized Interview Schedule for Contamination, a brief interview based on high scores on the initial MFQ, and the VAS. All subsequent research assessments comprised only the ADIS-IV, Y-BOCS, and VAS. The patient was asked to complete the battery of questionnaires online within 1 day of each of the 4 subsequent research assessments to collect self-reported symptoms. A second baseline research assessment was conducted to establish stability of symptoms prior to intervention. This was completed at Week 9, just prior to the commencement of treatment, which (unbeknown to the assessor) was scheduled to begin the same day. The remainder of the assessments were held at Week 20 (post session 10), Week 28 (post session 13), and Week 36 (post end of treatment, which fell 2.5 weeks after the end the final therapy session).

Session-by-Session Assessments

The patient also completed the VAS at the start of each treatment session to collect regular and frequent assessment over time to monitor treatment progress (cf. Egan & Hine, 2008; Kazdin, 1982).

Treatment

The current treatment was aimed to involve 10–20 one-hour sessions occurring twice-weekly (cf. Agras, Walsh, Fairburn, Wilson, & Kraemer, 2000; Riley, Lee, Cooper, Fairburn, & Shafran, 2007) for the first 2 weeks, then weekly, then in 2-week intervals for the final few sessions. James received 15 hour-long sessions over the course of 24 weeks, approximating this treatment schedule. The main morphing-fear targeted approach occurred in the first 12 sessions (16 weeks), with the final 3 sessions focusing primarily around residual symptoms of low mood. The therapist delivering the treatment was experienced in treating mental contamination and morphing fears. The detailed background for the choice of this approach is provided in Shafran, Zysk & Williams (in press). The treatment was based on modified Cognitive Behaviour Therapy for mental contamination (Coughtrey et al., 2013). CBT for mental contamination differs from standard CBT in several ways, including the emphasis on behavioral experiments, detailed assessment about the source of contamination, history of violations and beliefs about how mental contamination spreads, focus on the unique vulnerability that characterizes mental contamination, use of imagery (including protective imagery), and the meaning of contamination. However, CBT for mental contamination that takes forms other than morphing does not emphasize the importance of a stable sense of self. Key interventions to address the fear of morphing are given below in a session-by-session format.

Session 1. This session aimed to establish the current problem and its impact in more detail. James was asked to give a current example of his fear of morphing. He described being in a nightclub the previous week, which he considered to be full of *bad* people, having *stupid* conversations and *wasting time,* and he had become overwhelmed with anxiety that if he stayed there any longer, their stupidity would pervade him and he would become like them. When he spoke, he analyzed what he

was saying and considered that he was saying things that were "stupid," which was further evidence to him that he was at risk of losing his intellect and he feared he might have already lost some of his potential by being in that environment. After drawing up the formulation in session, James was asked to reflect on it at home and to monitor situations that triggered his morphing fears. He was asked to record the situation, trigger, thought, interpretation, and behavioral response to those situations.

Session 2. James was provided with psychoeducation about normal and abnormal obsessions, mental contamination, and morphing fears. The stability of characteristics such as height was reviewed from a scientific perspective, alongside James's sense of his "unique vulnerability" and consideration that "the science doesn't apply to me." Differentiation between fluid personality traits and adaptability to different situation versus permanent changing of key values was addressed.

Session 3. The perspective that behavioral experiments are personally salient and of high evidential value was discussed to provide a rationale for their use. The fear that James wished to focus on was his fear of "loss of potential." His compulsive behavior to protect his potential was highly time consuming and causing him to go to bed late and get little sleep. The experiment selected was to have a day in which he had "freedom from obsessions" (similar to "acting *as if*") in that he did not apply his usual rigid rules about people that he "should" associate with and those to avoid but he behaved as if he did not have a concern about losing his potential. He concluded from this experiment that it felt strange without these rules but his intellect was objectively no different at the end of that day than at the beginning.

Session 4. The session focused on James's concerns about his appearance and that it was vulnerable to change based on his emotional state and people he had been with. A behavioral experiment was

devised and set for homework that would involve him taking photographs of himself in different emotional states and after being near different people. The therapist would then try to guess the emotional state to gather some objective information about the reality of his fears.

Session 5. James brought in the photographs and the therapist failed to guess his emotional state correctly from them. The meaning of this was discussed.

Session 6. James's unique vulnerability to morphing was explored. James was asked to consider why when he was near "stupid" people he was vulnerable to becoming like them, but when others were near the same people, their sense of self was stable. James did not have a clear explanation for this but was able to conclude that it may not be that he was actually vulnerable but rather that he felt he was vulnerable. The distinction between feelings of being diminished versus fact was an important one that was returned to throughout subsequent sessions.

Session 7. The session focused on qualities that are not changeable, which, in James's case, included his gender, dislike of Marmite, and failure to appreciate the brilliance of Dolly Parton. He agreed to ask those who knew him to describe him in 10 words and then reflect on these traits to see the consistent characteristics in himself.

Session 8. Homework was reviewed and there was consistency among the descriptions of the patient as a thoughtful, considerate, disorganized, perfectionist individual. A pie chart of his stable characteristics and fluid ones was drawn based on Fairburn et al. (1995) to illustrate that the sense of self is neither completely stable nor completely fluid. A behavioral experiment was agreed for homework that involved James measuring his height before and after exposure to "stupid" people.

Session 9 onwards. Homework was reviewed and it was agreed that objectively his height had not changed after exposure to "stupid" people despite his feeling shorter and diminished as a person from such contact. There was consideration that James may have been mislabelling a negative mood state as "diminished" where "sad" or "worried" may have been more accurate descriptors. This conversation led to increased discussion of other difficulties James was having regarding his mood and perfectionism. Such topics became the focus of the remaining sessions, which used standard CBT methods (cf. Beck, 1995; Shafran, Egan, & Wade, 2010).

The treatment terminated with the therapist and patient devising a relapse prevention plan reviewing what was done in treatment, what the patient found to be useful, and how to spot the early signs of a relapse. To summarize treatment gains in his morphing symptoms, James was asked to think about how his identity has solidified and become more robust, and how this has contributed to a decrease in his perceived vulnerability to morphing, and consequently a reduction of his morphing fears.

Results

Table 1 presents the outcome of each of the 5 research assessments. James did not complete the online measures at Week 20, so data are missing for this time point on the VOCI-MC, OCI-R, BAI, and BDI-II (he completed the MFQ by email).

Experimental Criterion

The magnitude and rate of the change of symptoms across different phases were visually inspected in accordance with recommendations for addressing the experimental criterion in single-subject research (cf. Kazdin, 1982; Parsonson & Baer, 1986). Changes in the mean and trend were most relevant to the research assessment data, whereas changes in mean, trend, and latency of the

change were most relevant to the session-by-session assessments, and these were accordingly examined. Figures 2–4 present James's symptoms over time on the MFQ, Y-BOCS, VOCI-MC, OCI-R, BAI, and BDI-II as assessed at each research assessment.

The severity of morphing fears, mental contamination, OC symptoms assessed by the Y-BOCS, and depression was stable over the two baseline assessments in contrast to the decline seen during treatment. On all measures, there was an evident downward trend between phases and a change in mean that were especially pronounced on the MFQ and OCI-R. Symptom stability or a further decrease on the measures could be seen at posttreatment. The only exception was mental contamination, which showed an increase between Weeks 28 and 36.

Figure 5 displays the VAS measures as collected at baseline (bl-1 & bl2-S1), at the start of each treatment session (sessions "S" 2–15), and posttreatment (PTx).

A change in mean is evident between the baseline and treatment phases, and this is maintained at posttreatment. All reported symptoms indicate a clear downward trend over the course of treatment. The graph also shows a sharp decline between Sessions 5 and 7, and a decrease in variability by the final few sessions and posttreatment.

To supplement the visual analysis (cf. Manolov, Losada, Chacón-Moscoso & Sanduvete-Chaves, 2016) and measure data nonoverlap between two phases accounting for level and trend, the Tau-*U* statistic was used (cf. Parker, Vannest, Davis & Sauber, 2011; Vannest, Parker & Gonen, 2011). This analysis was carried out for the combined 5 research assessment measures relevant to OCD symptomatology (MFQ, VOCI-MC, Y-BOCS, OCI-R and BAI), and for the combined VAS (internal and general dirtiness, urge to wash, and anxiety). The omnibus Tau-*U* effect size as assessed by the 5 measures was −0.96, signifying a large intervention effect (Parker & Vannest, 2009), and this nonoverlap in confidence intervals between the baseline and treatment phase was found to be significant, $z = -3.48$, $p < .001$, 90% CI [−1.420, −0.509]. The Tau-*U* effect size as

assessed by the VASs was −0.49, signifying a small intervention effect. The difference between the two phases was also significant, $z = -2.20$, $p = .028$, 90% CI [−0.860, −0.124]. The weighted averages of the research assessments and the VAS measurements both met the recommended minimum effect size for practical significance (RMPE) for social sciences (i.e. 0.2; Ferguson, 2009).

Therapeutic Criterion

The data were additionally analyzed to assess the impact (i.e., clinical significance) of the treatment by determining if the patient's scores after treatment are closer to the mean of the functional than the dysfunctional population (cf. Jacobson & Truax, 1991; definition c). Table 2 reports clinical significance was achieved on all but one measure.

Discussion

The results provide preliminary evidence for the efficacy of a cognitively focused intervention for morphing fear, which concentrates on solidifying the patient's sense of self. Prior to treatment, James's fear caused him anxiety and was disruptive to his professional and social life. In the final posttreatment assessment James reported no morphing fear; he was no longer concerned about acquiring negative characteristics of others, being diminished and losing his intelligence, and his score on the MFQ was indistinguishable from a population without morphing fears. James developed a more robust sense of self and shed his belief that his response to negative events could cause physical changes in himself.

The treatment protocol was based around the theory that morphing fear is maintained by a low sense of self-stability and low self-esteem (cf. Rachman, 2006; Rachman et al., 2015). James's

formulation revealed that fragile self-concept, poor self-esteem, and doubts about his personal characteristics were maintaining factors of his symptoms. Additional maintaining factors in James's case included perfectionism (e.g., in his strive to be intelligent and his fear that his intelligence could be eroded through morphing), depression (e.g., he considered low mood as evidence of morphing), and disorganization (e.g., lack of regular routine causing physical signs of tiredness, which were mistaken as evidence for becoming diminished). Uncertainty about the self and low self-esteem have been found to be closely associated with OCD symptoms (cf. Campbell, 1990), and low levels of self-esteem, high anxiety, and high depression have been linked with feelings of instability about one's character (e.g., Campbell & Lavallee, 1993; Donahue, Robins, Roberts, & John, 1993). Ambivalent feelings about the self have also been used to explain why those with OCD have perfectionism, in that they strive towards high standards of personal characteristics and conduct (Bhar & Kyrios, 2007). Perfectionism and compulsions have been noted as defensive strategies aimed to protect one's desirable self-image in people with OCD (Guidano & Liotti, 1983). Each of these maintenance factors was addressed in therapy. Providing alternative appraisals of the threat (e.g., that intelligence is important to him and he *worries* about the threat of its loss) appeared to play a significant role in James's treatment and provided confidence that cognitively heavy CBT incorporating work on the sense of self was appropriate and effective for morphing fear reduction.

The treatment also resulted in clinically significant decreases in the patient's OC symptoms, anxiety, and depression levels. After treatment James no longer met diagnostic criteria for social phobia, and other symptoms of anxiety had decreased. This is noteworthy in light of the fact that although some anxiety-reducing techniques were introduced (e.g., relaxation), anxiety was not a focus of treatment. Depression symptoms, which were targeted, also decreased between baseline and posttreatment. In the final posttreatment assessment James continued to report mild OCD; however, residual OCD symptoms were limited to adhering to certain rules and sequences and some

internal counting compulsions, which James explained to be doing out of habit and which only caused him mild distress and interference. James's obsessional routines had decreased significantly, and his contamination fears had also diminished. Thirteen of the 16 intervention sessions also appeared to be helpful in alleviating James's symptoms of mental contamination. However, these therapy gains were not stable, and an increase in mental contamination (although not near the initial level) was seen at the posttreatment assessment. The return of mental contamination alongside maintenance of progress in morphing fear is of interest. Such a dissociation between the two indicates that morphing fears are not inextricably linked with mental contamination. In James's case, his feelings of mental contamination were often evoked by feelings of guilt and doubt, which featured strongly in a difficulty he reported encountering the week the posttreatment assessment was conducted. It would have been helpful to have conducted a further follow-up to understand the longer-term trajectory of both morphing fear and mental contamination. Session by session measures showed that the majority change in morphing fear symptoms occurred in the first six sessions of therapy. Fittingly, in the fifth treatment session James articulated he noticed a decline in his compulsive routines. The successful use of behavioral experiments in the first five sessions is thought to have played a key role in the rapid symptom decline since such experiments are of particularly high "evidential value." By the ninth session James reported feeling less diminished and less susceptible to morphing, and this change was reflected on the MFQ in the research assessment held the following week. Overall, the data indicate the largest treatment gains were made by the tenth session. This has implications for clinical practice in that a brief 10-session intervention may be sufficient for less complex symptoms, such as morphing fears without comorbid depression. In the case of James, complicating factors in treatment included severe depression, maladaptive perfectionism, disorganization, and poor homework compliance.

A key strength of this research rests in the fact that this study is the first to systematically use a valid and reliable measure in the assessment of morphing fears over the course of the intervention.

Previously reported intervention studies did not use a specific measure of morphing fears and operationalized treatment gains through general OCD reduction. This did not allow for confident conclusion about treatment efficacy for these fears specifically. Any future intervention studies would benefit from using the MFQ to quantify and compare morphing fear symptom change.

Another strength lay in the use of continuous assessments to help rule out threats to internal validity (Engel & Schutt, 2009; Kazdin, 1982). Retaining internal validity was also aided by using an independent assessor who was blind to the start and course of treatment. This may have helped reduce observer expectancy effect and placed fewer demands on the patient to report treatment gains.

In using a multiple-baseline design, stability of the dependent variables prior to intervention provided a stronger case for the intervention causing improvement. Treatment effects were detected in various ways, accumulating evidence for the causal role of the intervention. For one, visual inspection of the data—a stringent and reliable method in identifying treatment effects—consistently indicated a systematic intervention effect; on numerous measures symptoms were at the opposite extremes of the assessment range before and after therapy, signifying unparalleled stability in the data (cf. Kazdin, 1982). A high rate of symptom decline on most measures, alongside decreased variability on the VAS assessment towards the end of treatment, was also indicative of the effectiveness of treatment (cf. Kazdin, 1982).

A limitation of this study is that baseline measures were only collected at two points in time (as opposed to the minimum recommendation of three for an experimental design; cf. Kratochwill et al., 2010; Morgan & Morgan, 2009), making this design quasi-experimental. This was due to the fact the patient was randomized as to when treatment commenced so that the independent assessor could remain blind to the patient's treatment timeline. A second limitation is that symptom reduction seen over the treatment phase did not provide unequivocal evidence for treatment efficacy using this single-subject design; fluctuations of symptoms over time, spontaneous recovery, and/or

maturation may add to or account for symptom decline (cf. Kazdin, 1982). However, due to the longstanding history of the fear in the case described here, it is thought to be unlikely that the strongly held beliefs would have showed such marked improvement without intervention, and a more parsimonious explanation is that the intervention accounted for the changes. What can be concluded with less confidence is whether treatment gains resulted from morphing-fear-specific elements or nonspecific aspects of treatment (such as CBT generally or the focus on depressive symptoms).

Future Direction

Single-subject research relies on replication and it has been recommended that 3 to 6 successful systematic replications should be carried out to allow for reliable causal inferences to be made (Barlow & Hersen, 1973; Gallo, Comer & Barlow, 2013). Use of more complex designs, such as a multiple baseline design to target anxiety, depression, and morphing fears in different phases of the intervention program, would strengthen the validity of subsequent research. A longer follow-up period would help determine the stability of treatment gains over time. Future research may benefit from using self-esteem and self-stability measures to examine the association between the constructs and determine the relevance of therapeutic work on self-esteem and self-stability in alleviating morphing fear.

Conclusion

This study has shown treatment success following a theoretically grounded, cognitively focused CBT intervention for morphing fears in an OCD patient who had not been helped by previous treatment. Independent assessments and self-report session-by-session measures indicated that this specifically-tailored CBT was effective in reducing morphing fears and other symptoms, including

anxiety and depression. The unique symptoms presented in the described case illustrate the need to appropriately conceptualize and address the specific nature of morphing fear symptoms in treatment. The positive treatment gains exhibited by the patient are encouraging and can help pave the way for a refinement of specific CBT interventions for particular concerns, thus advancing clinical practice. If future replications support the results of this study, the described CBT variant can be considered an effective treatment for morphing fears.

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