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Imagery rescripting as a brief stand-alone treatment for depressed patients with intrusive memories

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ABSTRACT

Many depressed patients report intrusive and distressing memories of specific events in their lives. Where present, these memories are believed to act as a maintaining factor. A series of ten patients with major depressive disorder and intrusive memories, many of them reporting severe, chronic, or recurrent episodes of depression, were given an average of 8.1 sessions of imagery rescripting as a stand-alone treatment. Hierarchical linear modelling demonstrated large treatment effects that were well maintained at one year follow-up. Seven patients showed reliable improvement, and six patients clinically significant improvement. These gains were achieved entirely by working through patients' visual imagination and without verbal challenging of negative beliefs. Spontaneous changes in beliefs, rumination, and behaviour were nevertheless observed.

Although very significant advances have been made in the psychological treatment of depression, there is a substantial proportion of patients who either respond minimally to therapy, respond but continue to have residual symptoms, or relapse within two years of recovery (e.g., Fava, Ruini, & Belaise, 2007; Roth & Fonagy, 2004). Most existing treatments are generic in that they are applied without regard to the specific pattern of depressive symptoms reported by individual patients. An alternative approach, which we have termed modular treatment, is to target specific symptoms with focused, theoretically-driven interventions, with the aim of achieving more rapid change in defined subgroups of depressed patients. In this article we report the results of an exploratory trial of imagery rescripting for a subset of depressed patients with intrusive sensory memories, and relate the conditions under which such memories are likely to maintain depression to individual patient outcomes.

Depression is a heterogeneous and complex disorder involving memory (e.g., automatic retrieval of negative thoughts and images, overgeneral memory), attention (e.g., high levels of self-focus, rumination), and appraisal (e.g., negative beliefs and attributions). There are numerous generic treatments based on widely differing theoretical principles, prominent among them being cognitive therapy, interpersonal therapy, and behavioural activation. Each is significantly better than no treatment but Roth and Fonagy (2004) have estimated that only about 25% of patients receiving one of these treatments will recover and remain well for one year. Similarly, Hollon, Thase, and Markowitz (2002) concluded that only about half of all patients respond to any given intervention, and only about a third eventually meet the criteria for remission.

These generic treatments include a number of different treatment elements, which makes them widely applicable but leaves open the possibility that efficiency and effectiveness could be increased if specific components were delivered in a more individually-tailored way. It is possible that the heterogeneity of depressive disorders can best be managed by the systematic application of a range of alternative treatment strategies, based on a theoretical analysis of presenting symptoms. This can be initially investigated with a series of smaller-scale trials that attempt to match selected interventions with selected groups of patients.

Consistent with this, the modular treatment approach targets only a specific subset of processes that are disordered in a particular individual. The term "modular" means that individual components can be selected and added depending on the processes relevant to each individual. The assumption is that a specific brief intervention

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tailored to the clinical features of a subgroup of patients offers an opportunity to achieve enhanced outcomes in that subgroup. We suggest that targeted processes should meet the following three general criteria: (a) they are a reasonably common feature of the disorder, (b) there is empirical evidence that they maintain the disorder, and (c) they are susceptible to direct modification. One candidate process is rumination (Nolen-Hoeksema, 2000; Papageorgiou & Wells, 2003; Watkins et al., 2007; Wells et al, in press). Another, the focus of this article, is the presence of intrusive visual memories.

Dysphoria is associated with the frequency and sensory characteristics of intrusive negative memories, and with attempts to suppress or ruminate on them (Williams & Moulds, 2007a, 2007b). Similarly, depressed patients, like those with posttraumatic stress disorder (PTSD), often experience unwanted memories of one or more significant events in their lives that intrude frequently into their minds (e.g., Birrer, Michael, & Munsch, 2007; Brewin, Hunter, Carroll, & Tata, 1996; Kuyken & Brewin, 1994a; Patel et al., 2007). These memories are vivid, full of sensory details, distressing, absorbing, and associated with intense negative emotions. In studies to date the proportion of depressed unipolar patients reporting intrusive visual memories has varied from 44% (Patel et al., 2007) to 87% (Brewin et al., 1996). Critically for their suitability as a therapeutic target, the presence of frequent intrusive memories has been found to predict the course of the disorder even when initial symptoms are controlled for (Brewin, Reynolds, & Tata, 1999), suggesting that it maintains depression in this subgroup of depressed patients.

A theoretical framework that can suggest suitable interventions for intrusive memories is the retrieval competition hypothesis. Brewin (2006) proposed that emotions and behaviour are both under the control of multiple memory representations that compete for retrieval. The function of therapy is to create alternative, more positive memories that are more accessible and hence are retrieved in preference to the dominant negative memories. One technique that aims to create more positive sensory images and memories is imagery rescripting.

Imagery rescripting involves having patients focus on the contents of their intrusive image or memory and vividly imagine an alternative, more positive outcome that they have previously generated and rehearsed with their therapist (Hackmann, 1998). Rescripting can be used to support standard cognitive-behavioural interventions such as cognitive challenging of negative beliefs, or alternatively as a stand-alone intervention. To date it has been used, either alone or in combination with other interventions, in the treatment of the sequelae of child sexual abuse (Smucker, Dancu, Foa, & Niederee, 1995), borderline personality disorder (Arntz & Weertman, 1999), posttraumatic stress disorder (Arntz, Tiesema, & Kindt, 2007; Grunert, Smucker, Weis, & Rusch, 2003; Grunert, Weis, Smucker, & Christianson, 2007), snake fear (Hunt & Fenton, 2007), and social phobia (Wild, Hackmann, & Clark, 2007). To our knowledge it has not previously been used in the treatment of depression.

As a first step toward testing the potential value of imagery rescripting for depressed patients with intrusive memories we conducted a small-scale open trial of the procedure, consisting of a replicated series of individual cases, to see whether its use would be associated with a rapid and sustained reduction in symptoms. Imagery rescripting was implemented on its own, without any deliberate attempt to challenge negative beliefs, address verbal cognitions, or modify behaviours. This was a Phase II exploratory trial (e.g., Campbell et al., 2000) designed to gather evidence for the appropriateness of conducting a full-size randomised controlled trial at a future date.

Our major prediction for the trial was that improvement in depression symptoms would be accompanied by a reduction in the frequency, distress, controllability, and amount of interference produced by intrusive memories. Since rumination typically includes visual as well as verbal content (Watkins, Moulds, & Mackintosh, 2005), which may reflect the presence of intrusive memories embedded within ruminative thinking (Birrer et al., 2007; Pearson, Brewin, Rhodes, & McCarron, 2008), we included similar measures of rumination to test whether improvement in depression would also go along with a reduction in rumination.

Method

Patients

Patients thought to be suffering from depression and on a waiting list for standard psychological treatment were invited to take part in the development of a brief psychological treatment for symptoms of low mood, involving learning to alter unwanted memories that keep coming to mind. Those with a primary diagnosis of current Major Depressive Disorder, according to the Structured Clinical Interview for DSM-IV (First, Spitzer, Gibbon, & Williams, 1995), were then interviewed to determine if they had experienced involuntary intrusive memories of at least one negative event in the past month. Depressed patients with intrusive memories were offered an immediate trial of imagery rescripting with the assurance that this would not affect their access to standard psychological treatment. Exclusion criteria were: psychotic disorders, organic brain disease, high risk of self-harm or suicide, current substance abuse, and first language not English. Of fourteen eligible patients who were assigned to treatment, two dropped out (one prior to treatment and one after two sessions) and two were excluded, one for providing false data and one for heavy substance use that only became apparent at a later date.

There were two men and eight women, with an average age of 41.3 years (range 30–56 years). The mean length of their current episode of depression was 2.3 years. Six patients had experienced 1–2 previous episodes of depression, and the remainder reported more episodes than they could count. Six patients had secondary comorbid anxiety disorders, including panic disorder (1), OCD (1), social phobia (3), generalised anxiety disorder (2), and specific phobia (3). One patient met diagnostic criteria for PTSD but as their response to the intrusive memories was now predominantly one of sadness rather than fear or horror, their primary diagnosis was judged to be major depression. Seven were currently being treated with stable doses of antidepressant medication and none were currently receiving psychotherapy.

Treatment

This was conducted by an experienced clinical psychologist with additional post-qualification training in cognitive-behaviour therapy (JW), using a manual developed for the study (see Wheatley, Brewin, & Hackmann, in press, for more details). The therapist did not have specific experience of imagery rescripting prior to conducting the treatment. The manual was based on the approaches previously used by Hackmann (1998), Smucker and Dancu (1999/2005), and Arntz and Weertman (1999). Treatment length was intended to be six weekly sessions of up to one hour's duration, with additional sessions scheduled according to clinical need. In practice the main reason for additional sessions was the emergence of new intrusive memories. Treatment was not discontinued as long as additional memories were appearing and were causing distress.

In the first session patients gave a detailed oral narrative of the event featuring in their intrusive image or memory, including details of the time of day, the weather, and their mental and emotional state at the time. They were asked to describe full details of everything they saw, heard, felt, and smelt during the event, as

well as what they were feeling and what thoughts passed through their mind. Patients were then asked what they needed to change or what outcome they would have liked, and were then guided to introduce corresponding modifications to their intrusive image.

Subsequent sessions involved checking on how readily the new images were retrieved during the preceding week, introducing further modifications where necessary, and identifying additional intrusive images and memories that required rescripting. Five patients reported experiencing between two and three additional intrusive memories. For example, two patients reported childhood sexual abuse as their main intrusion. During treatment both patients reported experiencing additional intrusive memories of incidents of teenage/adult sexual abuse, intrusions that had not been present during the original research interview.

Although the meaning of intrusions was elicited to aid rescripting, all changes were introduced through imagination and at no point were meanings verbally evaluated or challenged (see Wheatley et al., 2007, for two detailed case studies from the current series). Belief ratings and affect ratings were collected before and after each attempted imagery rescripting. Sessions were audio-taped and checked for adherence to the manual in weekly clinical supervision sessions conducted by CRB and AH. As this was an exploratory treatment formal adherence scales were not used.

Measures

Severity of depression

This was assessed with the Beck Depression Inventory (BDI: Beck, Rush, Shaw, & Emery, 1979), one of the commonest self-report measures of treatment outcome in depression. It provides a conservative estimate of change following treatment when compared to the other most commonly used measure, the Hamilton Rating Scale for Depression (Edwards et al., 1984).

Intrusive memories

Intrusive memories were elicited using a specially designed interview based on previous work (see Patel et al., 2007, for further details). The presence of intrusive memories was defined as the repetitive coming to mind of visual images of an event or events, accompanied by detailed contextual information indicating a specific time and place. Patients reporting memories rated their most frequent intrusion on four visual analogue scales assessing frequency (0 "none of the time" – 100 "all the time"), distress (0 "not at all" – 100 "severely"), uncontrollability (0 "not at all" – 100 "completely"), and degree of interference with daily life (0 "not at all" – 100 "severely"). The internal reliability of the four items ranged from 0.90 to 0.95 over the three weeks of baseline measurement, and so the items were added to give a composite measure of the severity of the intrusions.

Rumination

Patients rated general ruminative thought (not specific to their intrusions) on the same four visual analogue scales. Rumination was defined as follows: "When people feel depressed they tend to dwell on or think repeatedly about feelings, negative experiences and possible problems in the future. This repetitive and recurrent thinking is called 'rumination'". The internal reliability of the four items ranged from 0.82 to 0.89 over the three weeks of baseline measurement, and so the items were added to give a composite measure of the severity of rumination.

Procedure

Patients meeting study criteria reported a mean BDI of 32.7 at intake, with five patients in the moderate-severe depression range and five in the severe depression range (Beck, Steer, & Garbin, 1988). The group mean is typical of patients with severe depression (Beck et al., 1988). They then completed a 3-week baseline monitoring period to ensure their symptoms were stable. Mean BDI at the end of this period was 34.10. Patients completed the BDI and measures of severity of intrusion and rumination weekly during treatment, and then at 3-monthly intervals during the following year.

Analysis

The major hypotheses were tested by subjecting the treatment outcome data to hierarchical linear modelling analysis of change (Van den Noortgate & Onghena, 2003) in order to test for differences in mean and slope for patient symptom measures during the pre-treatment baseline phase, active treatment, and 3–12-month follow-up periods. The analyses fit separate regression lines within each of the three phases, modelling the relationship between time and symptoms. This allows a comparison of overall differences in symptom averages across the three phases as well as a test of whether the rate of change within a phase is slower or faster between one phase and another (the phase × time interaction). The advantage of this method of analysis is that it allows for pooling of data from multiple single-case series, the derivation of significance tests and overall estimates of common treatment profiles, despite number of data points varying from case to case (e.g., because of different duration of treatment). Period means represent extrapolations based on all available data points. Thus, the significance of changes before and after active treatment are given by the tests comparing all data collected during baseline and follow-up periods rather than by less reliable single pre-treatment and post-treatment observations.

Results

At assessment patients reported an average of 2.0 different intrusive memories (range 1–3 memories), corresponding to events occurring from age 4 years to age 48 years. They included such content as experience of medical operations and sexual abuse. Patients received a mean of 8.1 therapy sessions (range 3–19) and the mode was 7 sessions.

Outcome analyses

Mean scores on the BDI, composite intrusive memory measure, and composite rumination measure at baseline, end of active treatment, and 12-month follow-up are shown in Table 1. Hierarchical linear modelling analysis with the BDI (see Fig. 1) showed a highly significant effect of phase, $\chi^2(2) = 25.38$, $p < 0.001$, but no significant effect of time, $\chi^2(2) = 0.89$, ns, or time × phase interaction, $\chi^2(4) = 5.42$, ns. Thus although symptoms declined reliably across phases, there was no evidence that the rate of decline was significantly greater in the active treatment phase. Similar analyses

Table 1
Means (standard deviations) of outcome data and treatment effect size.

End of baseline	End of treatment	Pre-post effect size (d)	12-month follow-up
Beck Depression Inventory			
34.10 (9.45)	17.50 (8.80)	1.92	14.50 (17.19)
Composite intrusive memory score			
60.00 (19.33)	24.00 (28.58)	1.55	26.25 (31.96)
Composite rumination score			
59.37 (19.84)	25.25 (24.87)	1.60	25.94 (31.56)

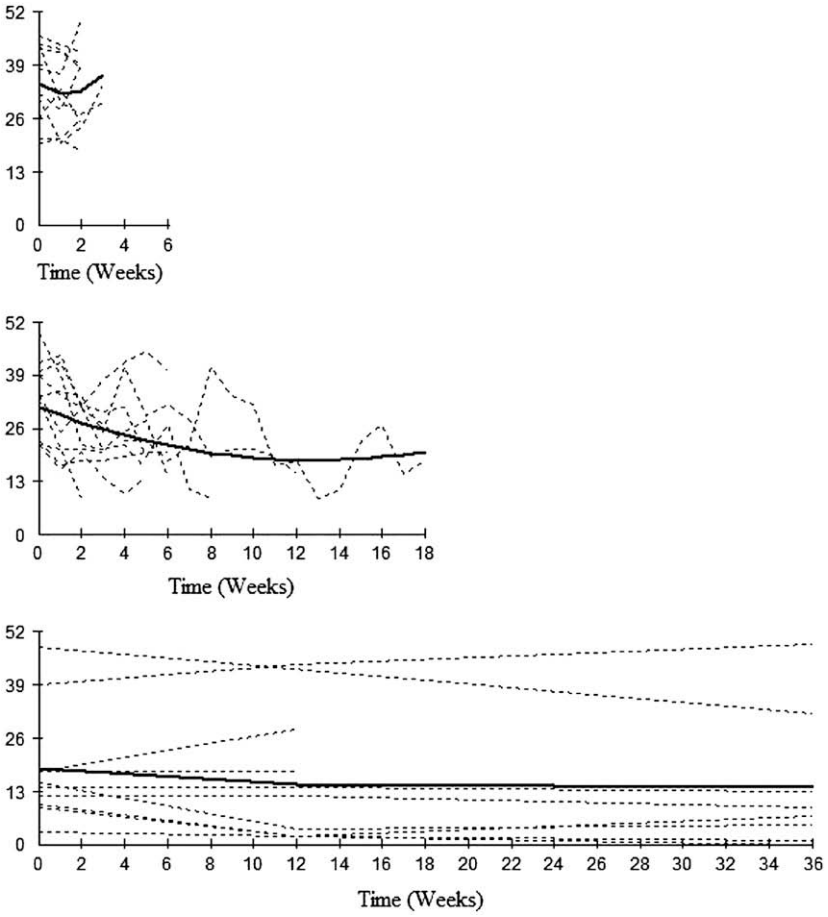

Fig. 1. Beck Depression Inventory scores for baseline (top), treatment (middle), and follow-up (bottom) periods. N.B. Dotted lines are raw scores and heavy lines are modelled values.

on the composite intrusive memory measure (see Fig. 2) also showed a significant effect of phase, $\chi^2(2) = 10.75$, $p < 0.01$, but no significant effect of time, $\chi^2(2) = 0.12$, ns, or time × phase interaction, $\chi^2(4) = 1.18$, ns. The composite measure of rumination (see Fig. 3) showed a similar pattern, with a significant effect of phase, $\chi^2(2) = 8.61$, $p < 0.02$, but no significant effect of time, $\chi^2(2) = 0.03$, ns, or time × phase interaction, $\chi^2(4) = 0.08$, ns.

Size of treatment effect

The reduction in the BDI from initial assessment to post-treatment averaged 16.60 (SD 13.47). The effect size d was 1.92. Using Seggar, Lambert, and Hansen's (2002) data on the BDI to operationalise Jacobson and Truax's (1991) criteria for reliable and clinically significant change, seven patients showed reliable improvement and six showed clinically significant change. Table 1 shows that the gains were very well maintained at one year follow-up.

Additional intrusive memories, number of sessions, and outcome

Five patients reported experiencing between two and three additional intrusive memories that emerged during the course of therapy. The themes were always similar to the dominant intrusion. For example, two patients with childhood sexual abuse as their main intrusion experienced additional intrusive memories of sexual abuse later in life. Although the numbers were small we conducted post-hoc analyses to generate hypotheses for future studies. These suggested that patients reporting additional memories tended to have more treatment sessions, $r = 0.47$, 2-tailed $p < 0.17$, and a larger drop on the BDI, $r = 0.57$, 2-tailed $p < 0.09$. There was similarly a nonsignificant trend for patients having more treatment sessions to show greater improvement on the BDI, $r = 0.52$, 2-tailed $p < 0.12$.

Discussion

This exploratory trial has provided the first evidence to suggest that imagery rescripting has potential as a brief stand-alone treatment for a subgroup of chronically depressed individuals with intrusive visual memories. Although the trial did not contain a control group, the validity of inferences concerning treatment effectiveness was enhanced by two methods. The first was the collection of baseline data to demonstrate that the intervention was begun while each patient was stable clinically. The second was the collection of follow-up data at three-monthly intervals over the year following treatment, in order to demonstrate the stability of treatment effects.

The average of 8.1 sessions required, despite the sample containing some patients with severe and recurrent depression, is low compared with the recommendation for 16–20 sessions of cognitive-behaviour therapy over 6–9 months in the treatment of moderate or severe depression (National Institute for Health and Clinical Excellence, 2004). The average reduction of 16.60 on the

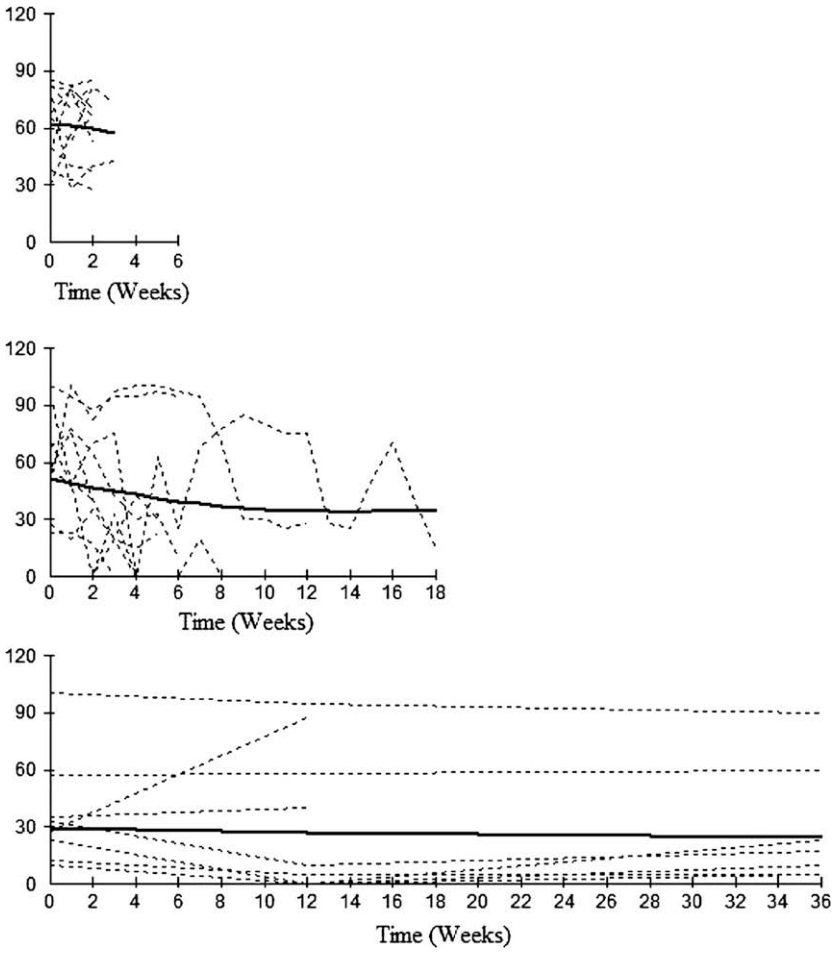

Fig. 2. Composite intrusive memory scores for baseline (top), treatment (middle), and follow-up (bottom) periods. N.B. Dotted lines are raw scores and heavy lines are modelled values.

BDI obtained by imagery rescripting compares favourably with recent trials of cognitive therapy for comparatively impaired patients: For example, after 8 weeks Dimidjian et al. (2006) achieved a reduction of 13.12 on the BDI in their severely depressed group, which increased to 16.68 after 16 weeks. Our data support the conclusion of DeRubeis et al. (2005) that even severe depression can be treated with cognitive techniques, provided these are appropriately delivered and targeted.

The exclusive focus during the therapy on constructing more positive images, together with the reduction in the composite intrusive memory measure over the course of therapy, are consistent with reduction in the frequency and distress associated with these intrusions being the active ingredient. It is notable, however, that there were also comparable reductions in rumination over the same period. We think this reflects the tendency for intrusive memories and rumination to occur together, and possibly be mutually self-supporting (Pearson et al., 2008), although we cannot rule out the possibility that the reduction in rumination is the key ingredient responsible for improvement. Importantly, it appears that predominantly verbal processes such as rumination may be reduced by a focus on sensory events occurring in parallel with them. It remains to be tested whether rumination-focused therapy might have a corresponding effect on intrusive memories.

As is typical of depression treatments (Hollon et al., 2002), about half the sample showed full recovery following the intervention. Although all the samples reported at least one very distressing intrusive memory in the last month, rescripting appeared to be more effective when intrusions were relatively frequent and hence were more likely to be a maintaining factor. Consistent with this, there was a trend for a better outcome among those patients who received somewhat more treatment sessions. This was mainly because they were willing to work on the additional memories that surfaced during therapy. A previous study found that only high levels of intrusive memories predicted outcome (Brewin et al., 1999), which is consistent with the well-established theoretical position that greater accessibility of negative cognitions will produce longer-lasting and more severe depression (e.g., Ingram, 1984).

Additionally, we observed that the presence of ongoing threat mirroring the content of the original intrusion appeared to be related to a poorer outcome. For example, one patient with intrusive memories involving being a victim of violence was currently living with an abusive partner. Consistent with this, any commonly accepted theory of memory would predict that, the closer the match between an environmental stimulus and a memory representation, the more likely that representation would be to win the retrieval competition. Relatedly, in the treatment of PTSD therapy for intrusions is not generally initiated in the presence of a continuing traumatic situation (Dutton, 1992).

It is of considerable theoretical interest that a cognitive treatment operating almost entirely in the visual modality, and avoiding direct verbal challenges of negative thoughts or modifications of behaviour, was associated in some individuals with an enduring treatment response that was maintained over one year. Moreover,

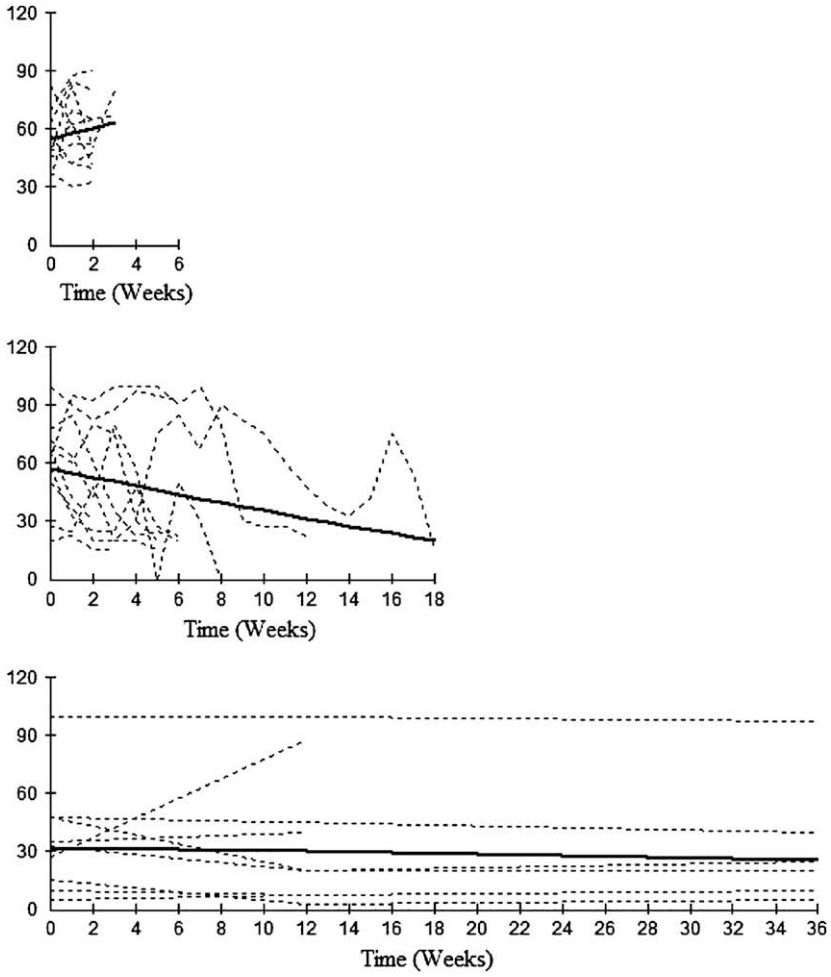

Fig. 3. Composite rumination scores for baseline (top), treatment (middle), and follow-up (bottom) periods. N.B. Dotted lines are raw scores and heavy lines are modelled values.

many of these individuals showed spontaneous behavioural activation and engaged with reinforcing activities they had not enjoyed for years. The intervention did not seek to correct memory or logical distortions, and did not seek habituation to negative images, but rather involved the visualisation of scenarios that had not, and in most cases could not, have happened. For instance, patients imagined themselves as an adult comforting themselves when they were children, imagined standing up to, confronting, and overcoming abusers, and imagined powerful, all-seeing, compassionate beings that protected and nurtured them. This process frequently led to the spontaneous revision of distorted beliefs, for example to a softening of inappropriately harsh judgements about the self being worthless or powerless. Some patients were explicit that even though they knew the empowering and compassionate events they imagined had not really happened, it felt to them as though they had happened.

According to the retrieval competition hypothesis (Brewin, 2006), psychological therapies do not directly modify problematic semantic or episodic memories but seek to create effective competitor representations that may have less toxic (and potentially more realistic) meanings for the patient. From this perspective, it is not necessary that the new, more positive representations are more accurate, only that they are more accessible in the presence of the same retrieval cues. Although it may seem surprising that newly-constructed images can compete effectively with long-standing memories, it is now seen as increasingly likely that the same neural pathways are involved in imagining the future as in reliving the past (Byrne, Becker, & Burgess, 2007; Schacter, Addis, & Buckner, 2007). Conceivably it is this similarity in the neural processing of visual memory and visual imagination that lies behind the promising results that have been obtained with imagery rescripting in a variety of disorders.

It was notable that severity of symptoms was not an indicator of poor treatment response. One of the most severely depressed patients in the trial, with a long history of chronic disorder, had previously been deemed too emotionally flat to benefit from psychotherapy. However, even within the first session she responded with extremely strong emotions when describing and reliving the content of her intrusive memories. This is consistent with experimental evidence that emotions are more strongly elicited by imagery than by verbal processing (Holmes & Mathews, 2005; Holmes, Mathews, Mackintosh, & Dalgleish, 2008). By the close of her treatment she no longer met criteria for major depressive disorder. She commented: "It feels as if I've got rid of a ghost. The memories are still there, but they are now in the background and they are no longer so scary."

Another patient with a history of depression since adolescence had made a recent serious suicide attempt, and required ongoing regular outpatient psychiatric support. Although this patient required the most treatment sessions (19) of any in our trial, this is not excessive for someone with such a long history and high levels of suicidal ideation. She made a very good recovery and commented

at three-month follow-up that the work "gave me back my self. It's like I've salvaged my self, my soul."

Despite these positive results, imagery rescripting may not always be appropriate. Depressed patients, like PTSD patients, tend to be high in avoidant coping (Kuyken & Brewin, 1994b), especially so when they are experiencing unpleasant intrusive memories (Kuyken & Brewin, 1999). This may indicate that some patients who might potentially benefit from this approach will choose not to disclose or explore their intrusive memories. For such patients an initial period of supportive treatment and building of therapeutic trust may be needed prior to imagery rescripting. One patient who did not wish to take part in the trial initially received 10 sessions of supportive treatment from their regular psychologist, who then went on to conduct successful imagery rescripting with her under the supervision of the trial therapist. Although anecdotal, this observation suggests that some flexibility in the timing and introduction of imagery rescripting may assist in maximizing patient take-up.

To summarise, we have provided preliminary evidence to suggest that imagery rescripting may be helpful for the subgroup of depressed patients who have reasonably frequent intrusive sensory memories. A randomised controlled trial appears to be warranted to put these findings on a more secure footing. More generally, our findings suggest that it is worth exploring whether further gains in the treatment of depression will come, not only from improvements in generic therapies, but also from the development of theoretically-driven interventions targeted at specific symptoms and maintaining factors.

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