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Shorter communication

Intrusive images and memories in major depression

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Abstract

Individuals with current major depression were interviewed to investigate the prevalence of distressing intrusive mental imagery among depressed patients and study the phenomenology of these intrusions. Of the 39 currently depressed patients, 17 experienced some form of repetitive intrusive imagery (i.e., either an intrusive memory or image), with intrusive memories being more common than images. The intrusive imagery was experienced as highly uncontrollable and interfered significantly with patients' everyday lives. The intrusions were experienced with a sense of 'nowness', as well as physical and emotional re-experiencing. Despite high levels of re-experiencing, levels of dissociation were very low. The intrusive imagery was in some patients part of a wider network of key defining autobiographical memories, consistent with the idea that it is likely to play a significant role in maintaining the patient's depressive mood. Interventions targeting these intrusions could potentially result in a positive shift in depressed mood.

Keywords: Depression; Memory; Imagery; Dissociation

Introduction

In recent years, there have been a number of studies showing that intrusive mental imagery is characteristic of a number of anxiety disorders including health anxiety (Wells & Hackmann, 1993), social phobia (Hackmann, Clark, & McManus, 2000; Hackmann, Surawy, & Clark, 1998), and agoraphobia (Day, Holmes, & Hackmann, 2004). Unlike autobiographical memories, which typically consist of detailed visual scenes explicitly linked to an original experience, these images typically consist of material that is abstracted from or represents an imaginal extension of an actual experience. As a result, the person may not necessarily be aware of the connection between the image and the original event (e.g., Wells & Hackmann, 1993). To date, however, there has been little investigation of this kind of intrusive imagery in major depression, a condition that is often comorbid with anxiety disorders.

Several studies have shown that patients with depression, like those with posttraumatic stress disorder (PTSD: Ehlers, Hackmann, & Michael, 2004; Ehlers et al., 2002; Hackmann, Ehlers, Speckens, & Clark, 2004;

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Reynolds & Brewin, 1998), frequently experience high levels of intrusive visual memories (Brewin, Hunter, Carroll, & Tata, 1996; Kuyken & Brewin, 1994; Reynolds & Brewin, 1999). Typically, depression severity is related to the frequency of intrusions and the level of avoidance of the memories (Brewin, Watson, McCarthy, Hyman, & Dayson, 1998a; Kuyken & Brewin, 1994). More recently, Starr and Moulds (2006) found the negative interpretations of intrusive memories to be correlated with depression severity and cognitive avoidance in a depressed undergraduate sample. Critically, the presence of these intrusions predicts the course of disorder even when initial symptoms are controlled for, suggesting that they are an important maintaining factor (Brewin, Reynolds, & Tata, 1999; Brewin, Watson, McCarthy, Hyman, & Dayson, 1998b).

These findings are consistent with the claims of many social psychologists (e.g., Srull & Wyer, 1990, 1993) that knowledge about the self does not just exist in a generalised, semantic form (c.f., trait knowledge about the worthlessness or unloveability of the self: Beck, 1976), but in the form of episodic memories of specific autobiographical events. Such events (e.g., a child being told by a parent that he or she was not wanted) may form 'turning points' (Pillemer, 1998) that help to define or provide evidence for the conclusions about the self at which depressed patients may have arrived. Apart from their theoretical importance in understanding the nature of negative self-representations in depression, the presence of intrusive memories (and possibly images) may also provide an opportunity to apply novel forms of therapy such as imagery rescripting (Smucker, Dancu, Foa, & Niederee, 1995) to depressed patients.

The content of intrusive memories in depression consists mainly of family illness and death, personal injury or assault, and interpersonal crises (Brewin et al., 1996). Whereas memories of death, illness, or injury to family members, and interpersonal problems, are more common in depression, memories of personal illness, injury, or assault are more common in PTSD (Reynolds & Brewin, 1999). Reynolds and Brewin (1999) found few qualitative or quantitative differences in the experience of intrusive memories between a matched sample of depressed and PTSD patients. For example, both groups reported some degree of reliving past experiences, as well as accompanying physical sensations. However, the measures were not detailed and may have been insufficiently sensitive to detect such differences that were present. For example, the measure of reliving did not specifically enquire about the 'sense of nowness' that is a characteristic of intrusive memories in PTSD (Hackmann et al., 2004). Only the prevalence of intrusive memories was found to be somewhat lower within the depressed group. A small number of patients in each group described their most frequent intrusion as a verbal or visual cognition concerning an event that had not actually happened but might conceivably do so, and to our knowledge this (Reynolds & Brewin, 1998) is the only report suggesting that depressed individuals may experience repetitive intrusive images (as opposed to memories).

Intrusive memories in PTSD, particularly those that contain an element of re-experiencing in the present, are considered to be underpinned at least partly by dissociative mechanisms (e.g., Bremner, Vermetten, Southwick, Krystal, & Charney, 1998), and PTSD is associated with elevated scores on the Dissociative Experiences Scale (Carlson & Putnam, 1993). In contrast, there has been little if any research into the relationship between dissociative tendencies and major depressive disorder. Starr and Moulds (2006) used the Response to Intrusions Questionnaire (Clohessy & Ehlers, 1999) to assess the extent to which mildly depressed individuals use dissociation to control their memories, but found no relationship between the negative meanings of intrusive memories and dissociation. The possible existence of elevated levels of dissociation in major depression, and the relationship of dissociation to intrusive images and memories, remains untested.

A final issue that has not previously been studied concerns the dynamic aspects of intrusive images and memories in depression. Is it the case, for example, that only those memories that can be elicited within a single research interview are likely to intrude in the future, or may they be replaced by other intrusive memories? If this is the case, can we expect the old and new intrusions to be related and, if so, in what way? These questions are relevant both to current research methods (i.e., are one-time assessments of intrusions adequate or likely to underestimate their importance) and to theoretical questions (i.e., do intrusions form an interconnected network of related representations?). A subset of the patients taking part in this study underwent imagery rescripting designed to reduce the frequency of their most prominent intrusion, and this created an opportunity to see whether these were replaced with alternative images and memories.

The current study had four main aims, all important for understanding in more detail the nature of these potential therapeutic targets. The first was to investigate whether depressed participants reported intrusive images, and to describe the frequency of such images relative to intrusive memories. Finding that images were

common would raise questions about whether both functioned equally as maintaining factors and whether both were equally appropriate therapeutic targets. Finding that images were uncommon would add to knowledge about the psychological mechanisms that distinguish anxiety and depression. Patients with a primary diagnosis of PTSD, who would be expected to experience frequent intrusive memories, were excluded, but the existence of other comorbid anxiety disorders was recorded to see whether they would account for the existence of intrusive imagery.

Second, we wished to study the qualities and impact of intrusions, and any associated emotions, in greater detail than had been done before, in order to gather clues about possible differences between depression and PTSD, the other disorder in which intrusive memories are prominent. Qualities included vividness, sense of nowness, and emotional re-experiencing, and impact included level of interference, uncontrollability, and distress caused.

The third aim was to assess levels of chronic dissociative experiences in a depressed sample, and to investigate whether these experiences were related to the existence of intrusive images and memories. Again, this provides a potential point of contrast with PTSD and could point up differences in the phenomenology of the two disorders. It is possible that intrusions require different therapeutic techniques if they are or are not accompanied by dissociation.

The fourth aim was to report whether the content of intrusions changed with psychological treatment, and whether additional memories began to intrude that had not been evident at assessment. The appearance of additional memories would suggest that therapists employ additional careful assessments before concluding that therapy had been successful.

Method

Patients

Sixty-six patients were recruited through referrals from local general practitioners and psychologists for a study of cognitive treatment of depression. Patients were assessed using the structured clinical interview for DSM-IV axis I disorders—patient edition (First, Spitzer, Gibbon & Williams, 1995). The depression and anxiety modules were administered to recruit patients who met criteria for current major depressive episode. The main exclusion criteria were (1) borderline personality disorder, (2) a psychiatric history suggesting manic depressive psychosis, (3) current or long-term drug and/or alcohol problems.

Thirty-nine patients (13 men and 26 women) had a primary diagnosis of major depressive disorder that met DSM-IV diagnostic criteria. Their ages ranged from 24 to 61, with a mean of 38.36 (SD = 8.13). The severity of depression ranged from moderate to severe with scores on the Beck Depression Inventory (BDI: Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) spread between 16 and 54 ($M = 33.68$, SD = 7.94). The number of depressive episodes reported by patients ranged between 1 and 12 ($n = 18$, $M = 3.11$, SD = 3.36), the remaining 20 patients describing the episodes as 'too numerous to count' (one patient had missing data). The length of the current depressive episode ranged between 1 month and 17 years. Twenty patients had at least one comorbid anxiety disorder (eight reported panic disorder with or without agoraphobia, three obsessive compulsive disorder, three PTSD, nine social phobia, nine GAD, and seven specific phobia).

Measures

Intrusions interview

The intrusions interview consisted of two sub-sections relating to memories and images. They were administered in a fixed order and lasted approximately 30–40 min. In the first section, patients were asked to report any spontaneous autobiographical memories that kept coming to mind over the last week from a past event. Following previous research (Reynolds & Brewin, 1998, 1999), autobiographical memories were defined as a visual image, complete with surrounding context, of a specific event that had actually taken place. If the last week was exceptional then they were asked about a typical week. If patients did not report any memories over the past week they were prompted to think back to when they felt most depressed and whether they experienced any repetitive intrusive memories from the past during that time period. The total number of

memories experienced by patients was recorded but only the two most frequent and distressing memories were explored further in the interview. Along with the frequency and duration of each memory, the age of the patient at the time of the event and the content of the memory were noted. The content was coded by two raters and the inter-rater reliability was calculated. Patients were asked to rate the extent to which various emotions (sad, guilty, ashamed, anxious, angry, helpless) accompanied the memories on a scale from 0 (not at all) to 100 (very much so). They then rated the vividness of the memories on a scale from 0 (hazy memory) to 100 (most clear and vivid memory), with ordinary, non-intrusive autobiographical memories being assigned a score of 35 on the scale to act as a reference point. Sense of 'nowness' and re-experiencing of physical sensations and emotions that were present in the original event were rated on scales from 0 (not at all) to 100 (very much so). Impact in terms of interference with daily activities, uncontrollability, and distress caused by the intrusion over the past week was rated on scales from 0 (not at all) to 100 (completely/severely). The same questions were then repeated for intrusive images, which were defined as a sensory representation of part of a memory, without surrounding context, or of an imagined event.

Beck depression inventory (BDI: Beck et al., 1961)

The 21-item self-rating inventory measuring the severity of depressive symptoms was administered. Patients were instructed to rate their mood over the past week.

Beck anxiety inventory (Beck, Brown, Epstein, & Steer, 1988)

The 21-item questionnaire assessing both physiological and cognitive components of anxiety was given to patients, to rate their symptoms over the past week.

Dissociative experiences scale (DES: Bernstein & Putnam, 1986)

The DES is a 28-item self-report questionnaire, measuring the frequency of dissociative experiences. Patients were asked to quantify their experiences on a visual analogue scale from 0% (never happens to you) to 100% (always happens to you) for each item. Extensive reliability and validity data are available for the DES (Carlson & Putnam, 1993). Following the usual practice, analyses used the mean of the 28 items.

Results

Frequency and duration of images and memories

Seventeen patients (44% of the sample: 5 men and 12 women) reported experiencing one or more intrusive memories. The number of memories reported ranged between 1 and 3 ($M = 1.71$, $SD = 0.59$). Detailed information was only collected on the two most frequent memories, resulting in a total of 28 memories. Four patients, all of whom described intrusive memories, additionally reported experiencing an intrusive image. Between one and two images were reported ($M = 1.25$, $SD = 0.50$), comprising a total of five images. The number of intrusive memories reported by patients was greater than the number of images, $t(38) = 5.16$, $p < 0.001$.

There was no difference in the total number of intrusions reported between patients who also had an anxiety disorder and those who did not: $t(37) = -1.15$, $p > 0.05$. Of the four patients reporting an image, only one had a comorbid anxiety disorder (panic disorder). Of the 17 patients, 11 experienced the most prominent memory either once/twice a week or several times a week and only three reported it as intruding everyday. All the images intruded once/twice a week or several times a week. The duration of memories varied between seconds ($n = 5$), minutes ($n = 7$), and hours ($n = 5$), while images were only experienced as lasting a few seconds ($n = 3$) or minutes ($n = 1$).

Content of memories and images

All 28 memories could be assigned to one of the following categories: illness, death, or injury to family member or close friend (46%); threat of illness or injury to the patient (14%); assault or threat of assault on the patient (24%); and interpersonal problems, including breakdown of intimate relationships or serious

disputes with friends, family, or work colleagues (14%). There was complete agreement on categorisation between two independent raters ($\kappa = 1.00$). The images were all based on an original memory. Two were of a person's face detached from their body (e.g., a stalker's face), and the remaining three were frozen images of a person (e.g., uncle dead in his chair, slumped to one side). Because there were so few images, they are considered together with intrusive memories in the following analyses.

Qualities and impact of intrusions

The two main emotions associated with the intrusions were sadness ($M = 86.47$, SD = 24.54) and anger ($M = 74.41$, SD = 33.16). The mean ratings of vividness were high, $M = 82.35$, SD = 15.62, with patients rating their intrusive memories as much more vivid than their ordinary autobiographical memories, $t(16) = 12.50$, $p < 0.001$. Levels of re-experiencing were high for both emotional ($M = 68.53$, SD = 29.73) and physical ($M = 60.00$, SD = 33.40) re-experiencing. The average degree of 'sense of nowness' during the main intrusion fell near the midpoint of the scale ($M = 56.76$, SD = 41.79). The intrusions had a moderate degree of impact in terms of interference with daily life ($M = 56.18$, SD = 30.75) and uncontrollability ($M = 57.50$, SD = 27.45), but were rated as very distressing ($M = 78.53$, SD = 32.87).

Dissociation, depression, and intrusions

The mean level of dissociation on the DES was low ($M = 16$, SD = 10.03) compared with the five previous studies of PTSD patients cited by Carlson and Putnam (1993), in which mean scores ranged from 26.1 to 41.1. DES scores were not significantly associated with BDI scores, $r(34) = 0.22$, $p > 0.05$, and there was also no significant relationship between the experience of intrusive imagery and dissociation, $r(35) = 0.10$, $p > 0.05$.

Inter-relationships between memories

In three out of nine patients who experienced two frequent intrusive memories, one of the memories was from an earlier period in the patient's life that held similar meanings to the second intrusion. Thus, the age at the time of the memories did not cluster around one time period but ranged from early childhood into recent adulthood ($M = 20$, SD = 12.12).

Five out of the nine patients in the sample who received imagery rescripting treatment reported experiencing additional intrusive memories. The number of new memories ranged between two and three, with the thematic component being similar to the dominant intrusion. 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.

Discussion

Frequent distressing intrusive memories were found in just under half of the depressed sample, supporting findings from earlier studies (Brewin et al., 1996; Reynolds & Brewin, 1999), but the prevalence of intrusive images was much lower. This is in contrast with studies of social phobia (Hackmann et al., 2000) and agoraphobia (Day et al., 2004), which found intrusive images in every patient in their samples. It should be noted, however, that there were methodological differences in how intrusions were defined and elicited in these studies. For us memories were the primary focus, were enquired about first, and an attempt was routinely made to differentiate them from images. In the studies of anxiety disorders, images were the primary focus, were enquired about first, and were not always formally differentiated from memories.

In the Hackmann et al. (2000) study many of the patients reported images that were related to actual memories. More recently, Speckens, Hackmann, Ehlers, and Cuthbert (in press) found that 81% of a sample of 37 patients with OCD reported mental images in response to a semi-structured interview. Most of these images were memories of earlier adverse events or were associated with them. Patients whose images were related to earlier adverse events had more obsessive–compulsive symptoms than those whose images were not.

This may be an interesting parallel with depression research, with intrusive memories being related to symptom severity. Future studies need to resolve these differences in methodology in order to assess whether or not the prevalence of intrusive imagery is similar in anxiety disorders and major depressive disorder.

In our sample, intrusive images occurred in individuals without an apparent comorbid anxiety disorder, suggesting that these phenomena exist in depression but are not particularly common. Without a control group we cannot conclude that there is an increased frequency of intrusive images in depression, but the fact that they were reported to be highly distressing suggests that they are of potential interest. Both intrusive memories and images were experienced as highly uncontrollable, distressing, and significantly interfered with patients' daily lives, images differing mainly in the fact that they intruded for briefer periods of time. This raises the possibility that some memories may be maintained by a ruminative process (c.f., Speckens, Ehlers, Hackmann, Ruths, & Clark, 2007).

Interestingly, images were only reported by patients in this series when an intrusive memory was also present, with the image representing a 'snapshot' from the original memory that appeared with little surrounding context. Consistent with the definitions provided to participants, memories had a narrative element involving contextual detail and thus were generally found to be more elaborated and longer in duration. For example, a patient reported an extended narrative memory of her mother dying in her arms in a hospital bed, while she changed her clothing. The images she experienced were of her mother lying in her coffin and her younger sister's face when she told her that their mother had died. Thus, images tended to hold particularly meaningful implications for the patient and/or refer to moments with the largest emotional impact. This raises the question of whether the images are similar to the worst moments or 'hotspots' reported as intruding in PTSD (Grey, Young, & Holmes, 2002; Holmes, Grey, & Young, 2005), or whether they have a similar function to the 'warning signals' described in PTSD (Ehlers et al., 2002).

The study has confirmed previous findings concerning intrusive memories in depression. Consistent with previous work (Reynolds & Brewin, 1999), intrusions in depression often feature illness, injury, or death experienced by family and friends, and the predominant emotions that accompany them are sadness and anger. Intrusions are accompanied by a re-experiencing of emotions and physical sensations associated with the original event, but to a lesser extent by a sense of 'nowness'. Similar to the intrusive memories experienced by depressed patients in Reynolds and Brewin's (1999) study, the intrusions were accompanied with a sense of reliving, associated with high levels of affect and experienced with the same/similar physical sensations and emotions that were experienced at the time of the event. The number of patients reporting physical re-experiencing was greater in our sample in comparison to Reynolds & Brewin's (1999) depressed sample; 88% versus 62%. These figures confirm that re-experiencing symptoms are not unique to PTSD intrusions.

Among the new findings of the study were two separate indications that a single intrusion assessed in the research interview sometimes forms part of a network of related representations in memory. These representations may also be highly accessible, as illustrated by the fact that a third of patients experiencing one intrusive memory experienced a second intrusion which held similar meanings for them and/or confirmed underlying core beliefs about the self and/or their future. For example, a patient was raped in the bathroom of a nightclub and then later stalked for 2 years. The patient believed that something about her had attracted these men who had raped and stalked her.

Related representations may be much lower in accessibility, however. A subset of the patients in this series received treatment designed to modify their intrusions using imagery rescripting. This approach is compatible with the idea that imagery is strongly associated with self-goals and that new self-goals can be created by generating new images, which in turn should alleviate distress (Conway, Meares, & Standart, 2004). It is also compatible with a recent reformulation of CBT based on principles of retrieval competition. According to this approach (Brewin, 2006), therapists help patients to create new and more positive representations in memory, including thoughts and images, and assist them in retrieving these in preference to their old representations when confronted by relevant memory triggers.

Half of the patients receiving treatment in the form of imagery rescripting reported the emergence of new intrusive autobiographical memories as the main intrusions were worked on during therapy. For example, a patient reported a frequent intrusive memory of waking during an abortion procedure feeling terrified and seeing the white coats of the doctors. During treatment, two further memories began to intrude, one of being placed on a donkey by her father against her will (although she had been terrified and protested at the time) at

the age of 6 and the second of being pushed down some stairs by some older girls at the age of 10. The patient believed that these incidents confirmed her belief that she is "always vulnerable to more powerful people".

These self-defining moments may have shaped patients' more general self-beliefs, affecting their mood and colouring their expectations about their future. Of practical importance is the question of whether these new memories also require attention during treatment or whether by targeting the main intrusions these subsidiary self-defining memories also reduce in frequency. Hackmann et al. (2004) found that 3 out of 22 patients receiving cognitive behavioural treatment for PTSD noted fresh intrusions in the course of therapy, but that each of these only lasted a few days before disappearing again. In future research, it may be important to distinguish between new intrusions that provide more detail about the same event and those that correspond to distinct, but related, events.

This was also the first study to our knowledge to look at the relationship between intrusive mental imagery and dissociation in patients with major depression. Similar to figures reported by Carlson and Putnam (1993) for patients with affective disorders more generally, we found that our sample reported low levels of chronic dissociation relative to PTSD patients. The experience of intrusions did not appear to be related to levels of dissociation. Consistent with this, intrusions involving dissociative features such as out-of-body experiences are more common in PTSD than depression, and have been linked to the experience of helplessness (Reynolds & Brewin, 1999). It is possible that the presence of dissociation during and after exposure to an extremely negative event affects the nature of subsequent intrusions (e.g., whether re-experiencing will be accompanied by distortions in the sense of time), rather than the likelihood that intrusions will occur.

In summary, depressed patients are more likely to experience intrusive sensory memories than images. However, both forms of intrusions are associated with high levels of distress, uncontrollability, and symptoms of re-experiencing. Clearly, the emotional intensity and sensory qualities with which these intrusions are experienced and the powerful negative meanings they elicit are likely to affect patients' mood, consistent with their hypothesised depression-maintaining properties. Studying the phenomenology of these intrusions and the possible implications of experiencing spontaneous imagery places researchers in a better position to design appropriate interventions. Imagery rescripting has recently been successfully used to counter troublesome mental imagery in other conditions (Arntz & Weertman, 1999; Hackmann, 1998; Hackmann et al., 2004; Smucker et al., 1995), and may potentially be promising in the treatment of intrusive imagery in depression (Wheatley et al., 2007).

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