A Portfolio of Study, Practice and Research;
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Focusing on imagery in cognitive therapy: mirrors that
would do well to reflect again

Ann Hackmann, 2004
Acknowledgements

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For my parents, Joan and George
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PART I

1. Personal Study Plan
1. Personal Study Plan

PsychD in Clinical Psychology: Conversion Programme

Name: Elizabeth Ann Hackmann

Date of registration: January 11th, 2000

End date: March 31st, 2004

Registration number: 3915948

Personal Tutors: Lorraine Nanke and Emma Dunmore

1.1. Overall Aims and Objectives

Aim: To attain greater professional competence in order to enhance my contribution to the application of clinical psychology to health care.

Objective: To produce a portfolio of study, practice and research that will demonstrate and enhance my competence in these areas. In addition I should like to increase my computer skills, attend some advanced cognitive therapy workshops, and learn more about Mindfulness Based Stress Reduction.

Overview: My plan is to have a largely themed portfolio, looking closely at imagery in the anxiety disorders, and its relationship to memory. Recurrent intrusive imagery will be examined in post-traumatic stress disorder in the Research Dossier, and in the Academic Dossier, along with imagery in other anxiety disorders. Therapeutic techniques for eliminating intrusive imagery will also be examined in the Academic Dossier. In the Clinical Dossier I hope to produce an overview of another aspect of my work: developing effective treatment for people with agoraphobia.

1.2. Academic

Aims: to increase my knowledge of research on intrusive imagery in psychopathology, and theoretical models, in order to place my own research and clinical observations in a broader context. I also aim to consider therapeutic strategies in the context of contemporary models of imagery and memory, and achieve some understanding of any possible synthesis of underlying processes
Objectives: To complete two academic reviews as follows:

1. I plan to review studies on intrusive imagery in post-traumatic stress disorder (PTSD) and the other anxiety disorders, and compare their content and their qualities. I plan to address the question as to whether intrusive images in these two types of disorder share common features to a greater extent than is often assumed.

2. Therapeutic strategies for eliminating intrusive imagery in the anxiety disorders will be examined, within the context of contemporary models of imagery and autobiographical memory. Cognitive aspects of behavioural and cognitive therapeutic procedures will be discussed, with a view to examining what may be involved in 'cognitive-emotional processing'.

Rationale: There is a relatively sparse academic literature on imagery. Writing these linked reviews will provide me with the opportunity to critically review the literature in an area in which I have been working for some years, and to attempt a synthesis of some ideas that have been emerging in the field. I hope to be able to amalgamate these reviews and condense them for publication in due course.

Plan: During the time I will be preparing these reviews I shall also be attending conferences and workshops, and will attempt to keep up to date with work in this area. I shall be convening symposia on the topic, and preparing a Special Issue for Memory, on imagery in psychopathology, and its relation to memory, which will involve editing and submitting relevant papers.

1.3. Clinical

Aims: to demonstrate professional competence, and to enhance professional competence by critical reflection on practice.

Objectives: to produce the following documents:

- An up-to-date curriculum vitae, illustrating the various strands of my career, and including a list of my publications, and targets for continuing professional development.

- An account of an on-going project on delivering effective cognitive therapy for agoraphobia. This account will include a synopsis of treatment development work done by our research group, and a clinical research project, comprising a pilot project and a programme in Primary Care, which is currently being carried out
and evaluated. This programme focuses on training volunteers to deliver the
treatment to individuals who (because of their agoraphobia) cannot easily access
treatment services.

**Rationale:** This will provide an opportunity to reflect on clinical practice and assess
the way in which theory, research and practice inform each other.

**Plan:** Use the account of my project on agoraphobia as an opportunity to reflect on
the way this work has developed over time, both in terms of content and delivery.

### 1.4. Research

**Title:** Characteristics and content of intrusive memories in PTSD
and their changes with treatment.

**Research supervisor:** Professor Anke Ehlers

**Aim:** To demonstrate and increase research competence

**Objective:** Our research group has carried out two treatment trials of cognitive
therapy for PTSD, and will be carrying out a third one. During the time we have been
studying this group it has become apparent that the phenomenology in this disorder is
fascinating, and may offer clues to underlying cognitive processes, involved in the
encoding and retrieval of information about trauma. This study aims to investigate
more systematically the content and qualities of intrusive imagery in PTSD, and its
changes over a course of cognitive therapy. Further research and theoretical questions
may be generated in the process, as the area is in its infancy.

**Design and methodology:** All participants will be tested before starting their course
of treatment, to examine the number, frequency and content of intrusions, and their
qualities. They will then be tested again at weekly intervals, to check what happens to
the frequency and other characteristics of the intrusions. Attempts will be made to
classify the content of the intrusions.

**Data collection:** Most of the data has already been collected. Participant numbers
should not be a problem, as all patients being offered cognitive therapy in the
treatment trial for chronic PTSD will be asked to participate in the study. Ethics
approval has already been granted.

**Time/suggested help plan:** There should not be a problem finding time to do the
assessments, as this is part of the author's normal work-load. Analyzing the data and
writing up the project will be harder to fit into the time scale, since more of it will have to be done in my own time. I shall look to my research supervisor for help in deciding how best to analyze the data.

1.5. Portfolio Outline
Contents of the portfolio will be: -
1. Personal study plan
2. Academic reviews
   2.1 Intrusive imagery in PTSD and the other anxiety disorders
   2.2 How can we achieve “cognitive-emotional processing” of intrusive imagery in the anxiety disorders?
3. Clinical dossier
   3.1 Curriculum vitae, continuing professional development, and list of publications
   3.2 Developing an effective treatment service for agoraphobia
4. Research portfolio
   4.1 Characteristics and content of intrusive memories in PTSD and their changes with treatment
   4.2 Two case studies, of individuals who took part in the group study

Signed ___________________________ Participant

Signed ___________________________ Course Director
Part II

2. Academic Dossier
Academic Review (1)
2.1 Intrusive Imagery in PTSD and the Other Anxiety Disorders

2.1.1. Abstract

Intrusive imagery is a key diagnostic feature of posttraumatic stress disorder (PTSD). Recent studies suggest surprising similarities between imagery in PTSD and other anxiety disorders. In both there are spontaneous, recurrent, distressing images which appear to signal future threat, but which are often rooted in past experience. Many intrusive images appear to involve sensory fragments of memory carrying important meanings, evoked without a time-code or other contextual information.

The Collins English Dictionary (Harper Collins, 1995) defines an image as "A mental representation of something (esp. a visible object) not by direct perception, but by memory or imagination." This dictionary definition highlights the visual modality, although images may have qualities associated with any or all sensory modalities. The term "imagery" will be used in this paper to denote mental representations with sensory qualities, and can thus encompass images, memories and dreams.

A distinction has been made in the literature between intrusive imagery in posttraumatic stress disorder (PTSD) and other anxiety disorders. In PTSD classic descriptions feature traumatic memories including 'flashbacks' (where the individual loses all awareness of their current surroundings), whilst in other anxiety disorders images are seen as portraying current or future threat. Imagery is considered intrusive if it is unwanted and involuntarily triggered, usually by situational cues. In this essay interview studies that reveal common features in intrusive imagery in the two types of disorder will be described. Retrospective accounts that give us clues to the origins of imagery will be summarized. Similarities and differences in phenomenology will be discussed, with experimental evidence where this is available. In addition, areas for possible further research will be addressed.

2.1.2. Introduction

2.1.2.1. Origins of imagery in PTSD and the other anxiety disorders. By definition in DSM-IV (Diagnostic and clinical manual of mental disorders, American Psychiatric Association, 1994) the onset of PTSD follows a major stressful event that seriously threatens the integrity of the self or others. Re-experiencing the trauma in
various ways is a diagnostic feature. Intrusive imagery usually appears soon after the trauma, although in some cases the onset of PTSD may be delayed, even for many years. Delayed onset appears to occur if the individual re-appraises the event, assigning it greater negative significance. At this point intrusive imagery (including nightmares) may erupt (Davey, de Jong & Tallis, 1993).

It also appears that images increase in frequency in individuals experiencing less traumatic stressors. Horowitz (1975) conducted studies in which non-clinical samples were shown distressing films, resulting in intrusive cognitions, including images. There were similar results in studies by Butler, Wells & Dewick (1995) and Holmes, Brewin and Hennessy (2004). Parkinson and Rachman (1981) found that mothers of children admitted to hospital experienced significantly more intrusive images before and during surgery than mothers in a matched control group. The difference in the number of intrusive images in the two groups was significantly greater than the difference in negative thoughts. On the day after the children’s operations the frequency of mothers’ images fell to match controls. Such observations have led de Silva (1986) to suggest that the imagery mode may be more easily activated by stress than the verbal mode, reinforcing Beck’s suggestion that “hot” appraisals can often be accessed through imagery, even where verbal cognitions are vague or indeterminate.

Many patients with anxiety disorders other than PTSD report recurrent imagery, the time of onset of which has not been extensively studied. However, some studies reviewed in this paper suggest that the content of the imagery echoes upsetting memories from around the time of onset of the disorder. This suggests that the distinction between images and memories may not be that sharp.

For example, Hackmann, Clark and McManus (2000) studied recurrent imagery in social phobia. Patients were asked if they had images in social situations, and if any of them were recurrent. If they did, they were asked to describe a recurrent image. Next they were asked to recall when they first had the sort of experiences reflected in the image. All but one of the patients reported upsetting memories of past events, which they considered linked to the recurrent image. These events clustered around the time of onset (typically in adolescence), reported earlier, in a separate assessment interview. Most patients said that they were either not anxious in social situations before this event, or it made the anxiety worse. The meaning and sensory
content of the memories were often strikingly similar to those of the recurrent images, although more modalities were reported in memories than in images.

There have been similar findings in agoraphobia. Day, Holmes and Hackmann (in press) found that the patients with agoraphobia all reported experiencing recurrent, intrusive imagery in feared situations. In comparison, none of the non-clinical control group reported experiencing imagery in these situations. When asked whether there was an experience associated with their recurrent image, all the patients reported a particular, distressing memory with similar sensory and interpersonal content to the recurrent image. Again, the memories were often from adolescence, and 75% of the patients felt that this experience had impacted on their anxiety in agoraphobic situations. Memories often featured instances of abuse or neglect, with themes such as lack of protection, humiliation, neglect or intimidation. Such links are also observed in clinical practice. For example, a patient with choking sensations during panic attacks reported a recurrent somato-sensory image of having hands tightening around her neck. When asked when she could first remember this sort of experience she said her father had tried to strangle her during sexual abuse, just before her panic attacks started. During panic she had the sense of choking now, rather than experiencing herself as remembering being strangled.

Wells and Hackmann (1993) also noted close similarity between the sensory and interpersonal content of images and particular upsetting memories, in nine patients suffering from health anxiety. One man with panic disorder always imagined collapsing, being taken to hospital, and never being discharged. At the age of three he was taken to hospital, and left there by his parents, who did not return for some days. As he had often been told that he was unwanted he concluded that they had abandoned him. Abandonment fears were triggered again when he developed back trouble as an adult, and was threatened with hospitalization. He developed intrusive images of never being released from hospital, but did not make a connection between these recurrent images and his early experiences.

In Pratt, Cooper and Hackmann’s study (2004) recurrent images of students with high levels of spider anxiety were also quite often (55%) linked to early traumatic experiences (such as being scared by a spider, or watching a parent’s reaction to spiders). The images also appeared to reflect over-generalized beliefs about the self, other people or the world. The most common modalities were visual
and body or skin sensations. As in the social phobia study more modalities were reported in the memories than in the images. For example, there were smells or tastes in a few memories, but none in recurrent images. The individuals in the spider anxious group did not necessarily meet diagnostic criteria for spider phobia. It would be interesting to discover whether a clinical group might report more recurrent images and upsetting memories.

In obsessive-compulsive disorder (OCD) de Silva (1986) noted that the contents of an obsessive image sometimes appear to incorporate material from an earlier traumatic experience. A more recent study (de Silva & Marks 1999) demonstrates that in some cases a trauma, followed by symptoms of PTSD, may have preceded OCD. They present nine cases, in which the onset of OCD occurred after a traumatic experience. There were clear thematic links between the trauma and OCD symptoms, although often there had been extensive generalization. In some there were flashbacks, together with compulsive overt or covert behaviour (including deliberate compulsive images); in others there were imaginative images of related possible catastrophes. Sometimes only careful enquiry revealed the previous trauma. Speckens et al (2003) also studied imagery in OCD. One third of the participants reported images that were actual upsetting memories. Of the rest, two thirds reported images that appeared to be linked to upsetting memories.

Other theorists have noted that OCD can be preceded by traumatic events and symptoms of PTSD. Janet (1903) described a woman who developed OCD after seeing the charred body of her daughter. Pitman (1993) gives a description of a Vietnam veteran who developed both PTSD and OCD, which persisted for two decades.

The work of Conway and Pleydell-Pearce (2000) may aid our understanding of intrusive imagery in PTSD and other anxiety disorders: the images appeared to reflect memories of extremely negative, self-defining moments when personal “goals” were severely challenged. Such images are reported as being recalled involuntarily (Conway, 2001), which can ‘hijack’ attention away from other current tasks. Experiencing intrusive images in anxiety provoking situations could be very disruptive and influence ongoing behaviour. The way in which such negative images are interpreted by what Conway calls the “working self” could be destabilizing. In summary, there is a growing body of evidence that in anxiety disorders some
recurrent, vivid, distorted, negative images may be rooted in previous upsetting experiences.

There has been some theoretical speculation concerning the relationship between conditioning and imagery in PTSD and other anxiety disorders, although contemporary models place more emphasis on cognitive processing than a simple pairing paradigm (Dadds, Hawes, Smith & Vaka, in press; Davey, 1992; Ehlers and Clark, 2000; Brewin, 2001).

2.1.2.2. Content of imagery in PTSD and the other anxiety disorders. Ehlers and Clark (2000) consider the paradox that although PTSD is classified with the anxiety disorders in DSM-IV (APA, 1994), anxiety usually arises in response to impending threat, whilst the problem in PTSD appears to be about memory for an event that has already happened. This puzzle can be resolved by proposing that PTSD occurs if the individual processes the traumatic event (or its sequelae) in a way that produces a sense of serious current threat. It is suggested that this sense of current threat arises as a function of appraisals made at the time and subsequently. Moments in the trauma and its sequelae that had the greatest emotional impact ("hotspots") appear also to be the moments represented in the intrusive images (Grey, Holmes & Brewin, 2001). Intrusions mainly represent moments during the trauma occurring just as the meaning abruptly changed, usually for the worse (Ehlers et al., 2002). Many of these intrusions reflect the first intimation of danger, leading Ehlers et al. to advance the "warning signal" hypothesis of intrusive memories in PTSD. When they are experienced following trauma they are often experienced as reflecting current threat.

In PTSD people can also (much less frequently) experience distressing intrusive images, without having experienced the events in the image. These images may be recurrent, vivid and distressing, just as if they were veridical memories. They are often confused fragments, accompanied by appraisals made at the time, even if later contradicted by events. For example, someone who witnessed a car crash, and thought that her partner had died, hated thinking about it, as she "saw" again an image she had at the time, of scattered limbs in a pool of blood, and "knew" that he was dead, even though she had discovered moments after the crash that he was unharmed. Non-veridical 'memories' are common in PTSD. Another patient had a
vivid, anticipatory image during the crash, of the windscreen shattering, followed by her death. This became a frequent intrusion, although it had not actually happened. Since she had originally experienced it as a premonition she was terrified of driving after the accident, partly because the intrusion was still appraised in this way.

Sometimes the images in PTSD are of events not experienced at the time, but heard about subsequently. One patient had intrusions of something she heard about. Her son was rescued from a burning building, and she was told that he died an hour later. She had images of him lying in the garden, fighting for breath. Years later she discovered that he had been deeply unconscious. Her images of him fighting for breath echoed earlier trauma. He had been born disabled, and she had often wept, seeing him struggle for breath as an infant.

Brewin (1996) describes a policeman called to a murder scene who subsequently had distressing images of the murder, although he had not seen it. This puzzled him, until he recalled that as a child he had watched his father attack his mother, and felt helpless. In the images and the memory a man repeatedly struck a woman on the neck. In addition to intrusive fragments of memory and non-veridical “memories” of trauma, patients with PTSD can have thematically linked, future orientated images, encapsulating the over-generalized sense of danger. The same patient had images of himself attacking a woman: these were so vivid that he had to check that he had not killed anyone. These images were comparable to images in OCD.

Thus although the classic view of intrusions in PTSD is that they are veridical fragments of memory for events directly experienced during the index trauma this may not always be true. Some incorporate material from earlier traumas, and some are constructed images of what people only assumed happened, or might happen in the future. Similarly, although one considers images in the other anxiety disorders as representing current or future threat, studies described earlier suggest that many contain material from earlier traumas, or generalizations on a theme. Images and memories may both be experienced as signalling future threat, rather than being appraised as input from memory.

A number of studies have indicated that in anxiety disorders images are common, and similar in content to verbal cognitions. Both imply impending threat. Beck, Laude and Bohnert (1974) in anxiety neurosis; Ottaviani and Beck (1987) in
panic disorder; Day, Homes and Hackmann (in press) in agoraphobia; de Silva (1986), Speckens et al. (2003) and Freeston (1999) in OCD; and Wells and Hackmann (1993) in health anxiety, report that images described by patients were similar in theme to their automatic thoughts, although Wells and Hackmann (1993) emphasized that images provided more graphic information about the feared catastrophe (i.e. illness or death) than thoughts. Freeston (1999) notes that obsessions occurring with high frequency as images are accompanied by higher appraisals of guilt and responsibility than obsessions occurring more frequently as thoughts. Through images what Barnard and Teasdale (1991) have described as the personally relevant, implicational (as opposed to the shared, propositional) level of meaning may perhaps be more easily accessed.

2.1.2.3. Appraisals of intrusive images and memories. When intrusive images in PTSD are examined there are various aspects of meaning to be considered (Ehlers and Clark, 2000). There is the meaning ascribed during the traumatic moment. There is also the meaning given to the intrusion occurring in the present (which may not be identical to the original meaning), and there is the meaning of having the intrusion. Thus someone seeing a car coming towards them on the wrong side of the road might think “I will die”. When they get an intrusive image it might mean “I could have died”, or it might be seen as a warning or even a premonition, indicating a possible car crash in the future. They might also fear that if they hold it in awareness they might go mad, or an accident might be more likely to happen.

Some of these different layers of meaning are apparent in the images of patients with other anxiety disorders. A recurrent image may convey a sense of current threat, or it might be seen as a premonition of future danger. There may be fears about what will happen if it is held in awareness. In addition although it signals current threat it may have its roots in an upsetting memory, which might have had a different meaning.

2.1.3. A closer examination of intrusive images and memories

2.1.3.1. Recurrent images. Clinical observations suggest that intrusive imagery occurs frequently in anxiety disorders and in PTSD. It has also been observed that the spontaneous (i.e. involuntarily triggered) intrusions in both kinds of
disorder share an important common feature: that of recurrence. Re-experiencing is a
diagnostic feature of PTSD. The literature abounds with descriptive material, but few
systematic studies. Hackmann, Ehlers, Speckens and Clark (in press) have studied
intrusive memories in patients following single event trauma, and shown that the
same fragments of memory tend to intrude again and again. In this study individuals
had a small range (between 1 and 4) of recurrent images (see Hackmann, this
volume).

Recurrent images have also been observed in other anxiety disorders. Hackmann, Clark and McManus (2000) found that all social phobic participants
identified distressing, recurrent images. Wells and Hackmann (1993) studied nine
patients with health anxiety, who described vivid images of death or illness.
Informally, patients mentioned that their images were recurrent. A recent study (Pratt,
Cooper and Hackmann, 2004) examined images of students with high or low levels of
fear of spiders. Many spider-anxious individuals (69%) reported spontaneous images,
all of which were recurrent. Only 7% of the control group reported spontaneous
images and none were recurrent.

Day, Holmes and Hackmann (in press) reported recurrent imagery in all the
patients suffering from agoraphobia, and in none of the non-clinical control subjects,
in comparable situations. Speckens et al. (2003) also reported recurrent imagery in all
their patients suffering from OCD.

Thus in the anxiety disorders there is a growing body of evidence that, as in
PTSD, individuals have recurrent images, relevant to their concerns.

2.1.3.2. Sensory modalities. Another feature shared by intrusive images in
PTSD and the other anxiety disorders is that they involve sensory features, which can
be compared. The most common modality in which intrusive memories are
represented in PTSD is the visual one, followed by the somato-sensory modality
(Hackmann et al., in press). Often when re-experiencing an event the individual can
experience bodily sensations including pain, nausea, shivering, sweating or faintness
felt during the trauma. As van der Kolk (1994) observed “the body keeps the score”.
Ehlers et al. (2002) and Hackmann et al. (in press) report that less commonly there
are auditory intrusions, and more rarely tastes or smells. A single intrusion can
encompass several modalities. Modalities represented appear to be those conveying
threatening meanings. Examples are the unexpected sound of a car crashing into one’s vehicle, or the smell of petrol triggering fear that the car might explode.

Similar observations have been made in other anxiety disorders. Hackmann, Clark and McManus (2000) observed that spontaneous images in social phobia most commonly involved the visual modality, followed by the somato-sensory modality. A few had auditory components, but none involved tastes or smells. In a study of images in health anxiety Wells and Hackmann (1993) observed that many images were reported to contain visual components, although somato-sensory components were also common. One patient recurrently experienced himself in a barrel at the bottom of the sea, put there by the Devil. He could see only blackness, felt his limbs constricted, and heard silence in response to his screams.

In Pratt et al.’s study (2004) the spider-anxious group reported more sensory modalities in spontaneous and self-generated spider images than in control (butterfly) images, or than the subjects with low levels of spider anxiety. The visual modality was most frequent, followed by body, skin and auditory sensations.

Day et al. (in press) report that in their recurrent, intrusive images 100% of the patients with agoraphobia reported both visual and bodily sensations, 45% reported sounds, and only 5% reported tastes or smells.

Thus those studies in which modalities in imagery have been considered indicate that material in any modality can be involved, visual material being most common, followed by bodily sensations, and less commonly sounds, tastes and smells. This pattern is similar to that found in memory images in PTSD.

2.1.3.3. Sensory modalities and the passage of time. During the treatment of PTSD it has been observed that gradually the distress, vividness and sense of “nowness” of images begin to fade. The frequency with which the image is involuntarily triggered also decreases. Eventually intrusive images disappear, although the person can still give a narrative account of the trauma. Images also become harder to evoke voluntarily, and modalities fall away, leaving only a hazy picture of what happened, unaccompanied by sounds, smells, tastes, bodily sensations or emotions (Hackmann, et al., in press; Hackmann, this volume). One patient described his original memory as like “virtual reality”. Over time it was associated with less smells and sounds, becoming a less vivid picture. Following recovery an
image of a traumatic event clearly has the status of a memory, rather than "something happening now". This transformation is usually gradual, and at some point an individual may describe the image has having intermediate characteristics. Intrusive memory images and ordinary memories appear to lie on a continuum.

This notion of a continuum is also apparent in DSM-IV (APA, 1994). In the Clinician-Administered PTSD Scale for DSM-IV (First, Spitzer, Gibbon & Williams, 1995) intrusive memories in PTSD can be categorized along a continuum, in which they vary from total immersion in the flashback with no awareness of present surroundings, through images including material in any sensory modality with some awareness of surroundings, to images with more of a daydreaming quality to them, or to an experience merely somewhat more realistic than thinking about the trauma. Further research is needed to determine the extent to which trauma memories are experienced as real percepts: events in the external world. Clearly this is the case with a full-blown flashback, but it is not clear how many other intrusive images may be mistaken for real events in the outside world in PTSD, or in the other anxiety disorders.

As discussed in the previous section, there appear to be strong links between recurrent images and upsetting memories in the anxiety disorders. Also, a potentially interesting observation was made in the studies described above, on social phobia (Hackmann, et al, 2000) and high levels of spider anxiety (Pratt et al, 2004). When the original memory was evoked it was reported to be more vivid, distressing, and also accompanied by more sensory modalities than the recurrent image, leading one to wonder if a similar process occurs over time in the other anxiety disorders to that which is seen in PTSD. It may be that recurrent images in anxiety disorders are stripped-down versions of the original memories, less distressing, but still capable of acting as a warning signal in threatening situations. It would be interesting to track changes in the frequency, vividness, distress and sensory modalities in images, during treatment for anxiety disorders. It could be that like intrusive memories in PTSD the images would gradually fade, be degraded, and lose modalities before disappearing.

2.1.3.4. Lack of a time-code and source awareness. In PTSD many authors have noted that intrusive memories (including flashbacks) are experienced without a time-code (i.e. as something happening now). Some could also be described as
memories without awareness of source. Thus is it not surprising that people often respond to them as if they indicate a current source of threat (see Ehlers and Clark, 2000). This sense of "nowness" has been observed in repeated ratings to fade over time in treatment (Hackmann et al., in press; Hackmann, this volume).

Another noteworthy feature of recurrent intrusions in PTSD is that they are hard to connect with the past perhaps because they are fragments lacking information about the time context, and the wider situation. For example, one patient complained that at night she had terrifying images of a dark, rectangular shape with shining eyes, which she tried desperately to suppress. She wondered if her experience was demonic. However, her son suggested that the image might be an intrusion from a recent car accident. This immediately made sense. Her first intimation of danger had been seeing the approaching headlights in the rear-view mirror.

Lack of source awareness also appears to accompany aspects of memory in the recurrent images of people with other anxiety disorders. For example, individuals in a social phobia study (Hackmann, Clark and McManus, 2000) were sometimes strikingly unaware that recurrent images might reflect distressing past events. One man was bullied in adolescence for being overweight, though he was a slim man. In therapy he realized that the way he experienced his body in social situations owed more to past than to present reality, as he often felt as if he weighed seventeen stone again, and would be ridiculed. Findings in this study suggest that in social phobia some recurrent images could be considered as memories lacking a time-code. They appear to be involuntarily triggered in social situations, and fail to update spontaneously.

Such observations occur in other anxiety disorders. Several patients in Day et al.'s study on agoraphobia (Day et al., in press) said they were surprised that they had never connected the recurrent image with the reported memory, since they felt it might be a significant factor. Phobics sometimes report similar phenomenology. A snake phobic reported recurrent images, in which a snake chased her at shoulder level, which to her seemed crazy. Reflecting on this she realized that as a small girl in California her brothers used to chase her, holding harmless snakes out at shoulder height. Again, the recurrent image appeared to reflect input from memory, without a time-code or other contextual information.
2.1.3.5. The causal status of images in the anxiety disorders and PTSD, and their relationship to actions. If some of the images in PTSD and the other anxiety disorders have their roots in memory, yet impart a sense of current threat, one might ask whether these images are epiphenomenal and without a function, or whether they have causal status: do they actually affect emotions or behaviour? A preliminary study by Hirsch, Clark, Mathews and Williams (2003) indicates that images may have a causal role. Individuals with a diagnosis of social phobia conversed with two stooges, on one occasion holding in mind an image of a time when they had felt socially anxious, and on the other holding in mind an image of a time when they felt relaxed in a social situation. There were significant differences between negative and more positive conditions in terms of how subjects felt, how they believed they looked, how they actually looked to others, how they perceived their own behaviour, and how others perceived them and their behaviour. This suggests that simply having a negative image or memory in mind may have a profound effect on what one experiences, how one behaves, and how one is perceived by others.

Such observations are consistent with the large body of work on imagery by Lang (e.g. Lang 1977; 1980). Lang suggested that emotional images contain both stimulus and response propositions. Stimulus propositions include information about the stimulus, e.g. ‘Cars may crash’. Response propositions relate to behaviour, e.g. ‘I will avoid driving, or drive very cautiously’. Response propositions may involve verbal, overt motor, and physiological responses. They also potentially embrace thinking processes, sense organ adjustments and postural responses. Such response elements are seen to be part of the flashback reaction in PTSD. During “reliving” of trauma in therapy one sees patients adopt different postures at certain points during their account, and repeat movements made at the time. Pain may also be re-experienced. One woman who had been given inadequate anaesthesia during a Caesarian section felt during the birth that her insides might come out if she did not become rigid, and try not to breathe or talk. This was repeated during her flashbacks, during which she held herself stiffly, and was afraid to speak. A laboratory study by Hellawell and Brewin (2002) found that, whilst writing an account of their traumatic experience, participants displayed more signs of motor and physiological reactivity when they were writing sections during which they later indicated they experienced flashbacks rather than ordinary autobiographical memories.
Response elements are also commonly observed along with stimulus elements of the image in anxiety disorders. For example, a wasp phobic heard a buzzing noise, had an image of a wasp approaching, and hastily covered his left ear. He said he always did this, because a wasp had once flown into his ear and stung him, ushering in his wasp phobia. Part of the "image" of the wasp was the prediction that it would fly into his ear, and an immediate response to avoid this happening.

Further research studies might build on the seminal work of Lang and colleagues, and examine this aspect of phenomenology in PTSD and other anxiety disorders.

2.1.4. Summary

Close examination of intrusive imagery in PTSD and other anxiety disorders reveals that despite apparent differences there are striking similarities. Both are characterised by recurrent, distressing, intrusive images, which signal current threat and may drive behaviour, preventing updating of appraisals. Images can incorporate material in any sensory modality, most commonly the visual one, followed by somato-sensory, auditory, olfactory and gustatory modalities. Many recurrent images may originate from traumatic past experience, obscured because fragments of memory may be stored without a time-code or other contextual information.

Not all recurrent images are veridical memories - some result from informational transmission, or idiosyncratic interpretations. However, because of their sensory content they have truth-value, and may be interpreted as accurate records of events, or portents of future catastrophes. Recurrent images may be stripped-down versions of traumatic memories, sometimes embedded in a new context, apparently reflecting current or future threat. In both types of disorder, intrusive images are more easily evoked by situational or imaginal cues than by a verbal search. They carry threat appraisals, formed during traumatic events, or later in the light of re-appraisal.

The studies reported in this paper have some weaknesses. They are mainly small interview or diary studies, with rather crude rating scales, although several studied the test-retest reliability and found it satisfactory. Some did not have control groups. Enquiring about memories directly after asking about images may enhance the chance that the "memory" content is distorted. This opens the whole "false
memory" debate (see Conway, 1997) which it is not possible to enter here. Modalities could be more carefully studied by breaking them down into smaller sub-modalities (Pratt et al., 2004). Nevertheless, the findings are intriguing, and pave the way for better-controlled testing of hypotheses.

In recent years several theoretical models of PTSD have been developed, incorporating the idea that the encoding and/or retrieval processes in trauma memories may be different from those in other autobiographical memories (Brewin, Dalgleish & Joseph, 1996: Brewin, 2001: Ehlers & Clark, 2000: Ehlers, Hackmann & Michael, 2004). Studies concerning the other anxiety disorders suggest that such theories may have wider applicability. There are also interesting parallels being drawn in disorders other than anxiety, including psychosis (Morrison & Baker, 2000: Morrison, 2001; Morrison et al, 2002); body dysmorphic disorder (Osman, Cooper & Hackmann, in press); and depression (e.g. Brewin, Hunter, Carroll & Tata, 1996; Brewin, Watson, McCarthy, Hyman & Dayson, 1998).
References


Academic Review (2)
2.2. How Can We Achieve “Cognitive-Emotional Processing” of Intrusive Imagery in the Anxiety Disorders?

2.2.1. Abstract

Many similarities have been noted between intrusive imagery in posttraumatic stress disorder (PTSD) and that in other anxiety disorders. Research suggests that in both cases imagery may have roots in past trauma, yet appear to signal current threat. In this essay methods of eliminating recurrent intrusive imagery are reviewed, with reference to their cognitive aspects. Contemporary models of imagery and its relation to memory are also reviewed. The concept of cognitive-emotional processing is considered, and an examination is made of common cognitive features of successful interventions.

In the previous review (Hackmann, this volume) a case was made for considering that intrusive imagery in posttraumatic stress disorder and the other anxiety disorders may have many similar features. In this paper various methods of eliminating intrusive imagery across the anxiety disorders are described, with reference to observed changes in cognition. Theoretical frameworks are examined to see whether these observations fit well with hypotheses derived from the theories. Finally, suggestions are made concerning common elements that may need to be present for cognitive-emotional processing of intrusive imagery.

2.2.2. Introduction

2.2.2.1. Cognitive-emotional processing: the concept. A seminal article by Rachman (1980) addressed the concept of emotional processing. He began by describing Freud's account of Anna O., which illustrates how emotional experiences may reverberate for many years. Symptoms of incomplete emotional processing are described, and include intrusive imagery such as flashbacks, images, memories with sensory aspects, and nightmares, which Rachman describes as “out of context or out of proportion, or simply out of time”. Successful emotional processing is defined as “a process whereby emotional disturbances... decline to the extent that other experiences and behaviour can proceed without disruption”. Rachman suggests the use of test probes to judge the success of processing: stimuli that triggered disruptive
cognitions and emotion should no longer do so. Signs of incomplete processing should disappear. For instance, Bandura, Adams and Beyer (1977) observed that following treatment snake fearful individuals reported “relief from..... recurrent nightmares about reptiles”.

Homage is due to Rachman, since these basic premises concerning emotional processing are still accepted. However, Rachman has since revisited the concept, and suggested changing the term to “cognitive-emotional processing” to incorporate advances from the ‘cognitive revolution’ which followed the behavioural treatment era. He also advocates giving more prominence to contemporary cognitive analyses (Rachman 2001).

This essay draws together clinical observations of cognitive change during interventions targeting intrusive imagery in the anxiety disorders. This is in an attempt to apply the principle of parsimony as suggested by Rachman (1980), by identifying common cognitive processes that might underlie different fear reduction procedures. The majority of effective strategies were originally behavioural techniques: in addition to listing these strategies observations are made concerning possible cognitive aspects of such interventions. In addition, an emphasis is placed on interleaving behavioural, experiential and cognitive strategies, rather than employing them in separate phases of treatment.

A variety of techniques are utilized to treat intrusive imagery in anxiety disorders. Cognitive aspects of the most common techniques are considered below.

2.2.3. Cognitive elements of exposure treatments

2.2.3.1. The effects of evoking intrusive imagery. In the anxiety disorders treatment often involves deliberate evocation of intrusive imagery. Treatment strategies involving the evocation of imagery include “reliving” of traumatic memories in PTSD (e.g. Foa & Rothbaum, 1998), imaginal desensitization (Wolpe, 1958) imaginal flooding (Stampfl and Levis, 1967) and eye movement desensitization and reprocessing (EMDR: see Shapiro, 2001). Therapist and patient provide varying degrees of structure. For example, during imaginal desensitization the patient is asked to visualize stimulus aspects of the situation, whilst in reliving and EMDR the therapist asks the patient to supply and describe details of the
stimulus, response and meaning elements. In imaginal flooding all the elements are described by the therapist.

Imaginal exposure appears to be an excellent method of accessing what Lang (1977; 1979) called the “fear structure”; a conceptual structure providing a program for escaping danger. Usually much more detail of how the person perceives the feared situation will be revealed than has been apparent during verbal discussion. Details of the feared stimulus situation, its meaning, and the person’s response set may be apparent from the patient’s description of the contents of consciousness.

In PTSD the patient is asked often to ‘relive’ the traumatic event, recalling as many aspects as possible in the first person, present tense. This can evoke extremely vivid, distressing imagery, or even dissociative flashbacks. Should this prove too taxing similar material can be accessed with less affect by asking the patient to write or type out the details of the event (Brewin & Lennard, 1999). Imagery can also be accessed during in-vivo exposure to situational cues reminiscent of the trauma.

In cognitive treatment of the other anxiety disorders a distinction is made between ‘hot’ and ‘cold’ appraisals, and attempts are made to catch the ‘hot’ ones, i.e. those triggered automatically and accompanied by strong affect, which are likely to drive behaviour. ‘Hot’ material is accessed as follows: the person is asked to describe a recent, specific episode of anxiety, including detailed sensory aspects, and appraisals made at the time. This process, akin to reliving, often elicits images and memories reflecting key appraisals of the situation. Similarly facing the feared situation can trigger intrusive imagery. This can then be examined, providing potential clues as to what the individual fears is about to happen, what they plan to do about it, and input from memory of disturbing past experiences. Again exposure appears more informative than simply speaking about one’s anxieties, for the patient as well as the therapist.

2.2.3.2. Effects of repeated and/or prolonged evocation of the imagery.
Repeated or prolonged evocation of imagery is another common treatment element. Imagery may be accessed either through imaginal exposure, or exposure to situational cues. Exposures may be lengthy, as in reliving, flooding or prolonged exposure sessions, or much briefer but repeated (with changing features) as in desensitization and EMDR. The usual response to repeated evocation of intrusive imagery is a
decrease in the distress associated with the imagery, accompanied by decreased signs of incomplete emotional processing. A huge amount of behaviour therapy research has been done on the relative efficacy of varying aspects of exposure to imagery and stimuli that trigger it. Reviewing this work is beyond the scope of this paper (for a review see Rachman, 2001). However, in view of the current interest in cognitive aspects of treatment, and their relationship to theoretical models of memory, a closer examination of phenomenology may be in order.

It has already been noted that verbal discussion does not appear to be as effective as exposure at accessing distressing imagery and its meanings. Once accessed these contents of consciousness are available for reflection and possible reappraisal, and indeed some spontaneous restructuring of meaning can be observed during exposure treatments. For example, when first reliving the memory of a car crash a woman with PTSD felt terribly angry with the driver behind her, whom she believed had caused the accident. During the second reliving session she suddenly reflected that in fact she had discovered later on the day of the crash that he had not caused the accident. His car had been shunted into her by another car. She then recalled that he had been the first to attempt to rescue her, and moved from seeing him as the perpetrator of the crash to seeing him as another victim. The affect fell sharply.

Imaginal desensitization procedures may provide similar opportunities for reappraisal. Images of feared situations (some of which may have their roots in implicit memories of traumatic experiences) are repeatedly brought into conscious awareness, and held there whilst the patient attempts to relax. One of Wolpe's students observed that during occasionally during imaginal desensitization upsetting images did not simply fade or become less distressing with repetition: sometimes other images and associations arose, and the original image underwent changes (Weitzman, 1967). Also, during Wolpe's treatment sessions a certain amount of cognitive exploration and discussion took place. However, Rachman (personal communication) stresses that such digressions were relatively rare, and their prevalence should not be over-estimated.

Levis (1980) reported that recovered memories of traumatic experiences sometimes emerge spontaneously during imaginal flooding sessions for anxiety disorders. During imaginal exposure (Stampfl and Levis, 1967) the therapist and
patient construct imaginary scenarios representing feared stimuli and the worst possible outcomes. The therapist then describes the feared scenarios as if they were occurring in the present. Occasionally this appeared to activate memories of actual traumatic events.

In EMDR an upsetting image which signifies a current concern is given a caption, and is held in awareness. Simultaneously the person is exposed to bilateral stimulation. The therapist frequently interrupts this to ask what is happening to the image. Usually other images and memories arise, and ultimately the images often move in a positive direction indicating cognitive change (Shapiro, 2001). If this does not spontaneously occur a ‘cognitive interweave’ may be employed to prompt for cognitive change.

Another method of bringing about cognitive change is to expose the individual to real situational cues. In this context, individuals sometimes experience sudden, spontaneous updating of memories. One PTSD patient was wary about revisiting the scene of the car crash, and tense on arrival. Suddenly she burst into tears of relief. She had remembered the situation in a way that made her fear that she could actually have avoided the crash. However, seeing the actual lay-out of the hill and the sharp bend, and knowing that the other driver had been on the wrong side of the road, had helped her reappraise the accident as unavoidable.

Another patient, who had been involved accidentally in a violent episode with an AIDS patient, was terrified of revisiting the hospital ward, fearing that she would see it still spattered with blood. Entering the ward and seeing it looking completely normal dispelled the flashbacks and associated fear.

Thus there is some evidence that merely evoking intrusive imagery (including memories) can result in various aspects of cognitive change, as well as decreases in distress and vividness.

A common impression is that the effective mechanism in any kind of exposure treatment is habituation. However, Foa has consistently offered a more complex, cognitive account. Foa and Kozak (1986) suggested that as much of the ‘fear structure’ as possible must be activated, and information incompatible with pathological elements needs to be provided. Habituation is one source of corrective information: the patient learns that anxiety fades, and does not go on forever,
lessening the desire to avoid it. However, habituation is only one of the possible sources of information.

Other incidental cognitive change in aspects of intrusive imagery occurs during exposure. Jaycox (1997) lists other mechanisms that members of Foa’s research group consider may be responsible for improvement with exposure to intrusive imagery in PTSD, in addition to habituation. These include:

a) introduction of safety information from the therapy environment (i.e. the patient is simultaneously aware that they are in a safe place with a therapist, and deliberately evoking imagery)
b) opportunities for discrimination between the trauma and other non-traumatic events
c) the discovery that facing memories does not lead to losing control (i.e. going crazy, collapsing, dying etc.) and
d) opportunities to focus on elements of the trauma which have driven negative evaluations, and modify these.

Finally, with repetition, a less fragmented, more coherent narrative starts to emerge (Foa, Molnar and Cashman, 1995). This in itself may be helpful, in some cases, partly because the patient connects the fears they had about what might happen with the later experience of the worst not happening (Ehlers and Clark, 2000). Imaginal exposure provides opportunities for the provision of corrective information. These cognitive aspects have all been described as facets of emotional processing.

Ehlers and Clark (2000) also suggest a variety of functions for reliving and in-vivo exposure in PTSD. They suggest that the distressing fragments of intrusive imagery may be elaborated and given a context within a wider range of autobiographical memories. It addition holding images in awareness, and putting meanings into words, provides an opportunity for seeing that previous appraisals were distorted. Other autobiographical knowledge can be brought to bear to constrain the implications of previous traumatic events, and a coherent narrative can develop. In addition, a time-code is attached to the imagery, which is recognized as deliberately evoked imagery including fragments of memory, evoked in the safety of the therapist’s room.
In so far as intrusive imagery in the other anxiety disorders also reflects input from memory evoking the imagery deliberately provides similar opportunities for spontaneous updating and reappraisal.

2.2.4. Prompting for cognitive change

If cognitive change does not occur spontaneously during imaginal or in-vivo exposure, there are a number of ways of prompting for cognitive change.

2.2.4.1. Deliberately enhancing links with other autobiographical knowledge during imaginal exposure. Ehlers and Clark (2000) have noted that reliving and in-vivo exposure procedures do not always lead to spontaneous restructuring of meanings in PTSD. Where there are obvious cognitive distortions the usual more 'cognitive' techniques of guided discovery and challenging automatic thoughts can be employed. There are number of randomized controlled treatment trials that suggest that cognitive therapy is as effective as an exposure program, and that when these two approaches are combined there is no additional benefit (Marks, Lovell, Noshirvani, Livanou & Thrasher, 1998; Tarrier et al., 1999). However, in these trials the two approaches were kept in separate segments of treatment: no attempts were made to interleave them.

It may be that there is additional benefit to be obtained if cognitive and behavioural (or experiential) elements are more closely interleaved. For example, clinical experience suggests that the material addressed needs to be 'hot' material, i.e. material conveying a current sense of threat (Beck, quoted by Rachman, 2001). As discussed above verbal discussion does not necessarily tap into the 'Implicational level' of meaning (Teasdale, 1999), and such material may be best accessed by some exposure to situational or imaginal cues. In addition, verbal discussion sometimes convinces the head but not the heart - logic may not change the way one feels. Something experiential (arising from a new real or imaginary experience) may be more convincing.

There are several methods of achieving this in PTSD. The patient may be asked to relive the trauma again, incorporating additional items of contextual information, which have been generated by the cognitive therapy technique of guided discovery (Grey, Young & Holmes, 2002). Incorporating such information appears to
reduce the toxicity of the appraisals with which the memory fragments were originally encoded. As the patient relives the trauma the therapist can gently prompt and enquire what really happened at each point. For example, someone who thought they might lose their legs in a car crash (but did not do so) could be asked what they know now about what really happened to their legs.

Another useful tactic is to draw out aspects of the traumatic event on a white-board, so that the correct temporal order and all significant details can be kept in view. Some patients derive benefit from writing out a trauma narrative, with all the distressing appraisals made at the time, and then inserting what they know now at the relevant points. This has the effect of updating the trauma memories with information acquired subsequently.

Sometimes it is helpful to change not only the narrative but also the sensory aspects of the memory representation, using imagery techniques. One woman crashed her car in the grounds of a hospital. She felt sure at first that help would be at hand. However, almost at once two nurses walked straight by without looking. As she had very neglectful parents, and a sad and lonely childhood, her instant conclusion was that, as on so many previous occasions, no one would care enough to help her. She had flashbacks to this moment, despite knowing that in fact only seconds later several people had run forward to help. To insert this information into the memory representation it was suggested that she should relive the episode, viewing it from the sky, so that at the same time she could see the nurses walking past, but also people running to help her. This reliving session decreased her distress (see Hackmann, 1997 for a review of imagery methods of transforming the meanings of memories).

In two recent randomized controlled trials of treatment for PTSD Ehlers and colleagues have obtained larger effect sizes than the trials described above, where cognitive and behavioural aspects of treatment were carried out separately (Ehlers et al., 2003; Ehlers, Clark, Hackmann, McManus & Fennell., in press). Less reliving sessions were conducted, but greater efforts were made to access and challenge distorted ‘hot’ appraisals, using a mixture of verbal and experiential strategies like those described above.

Some similar observations have been made in the other anxiety disorders. As discussed in the previous paper a patient with a recurrent intrusive image can be asked to evoke it, and then asked “when in your life do you first remember having
this kind of experience?" Often patients with anxiety disorders report an upsetting past experience with similar content to the imagery, and may spontaneously remark that this seems like an important connection they may not have made previously (for a review of this work see Hackmann & Holmes, in press). Not withstanding the caution indicated by the "false memory" debate (Conway, 1997) it appears that meaningful connections between memory and image can sometimes be made in this way. If patients understand at least some of the origins of their fears, this helps them conceptualize their problem as involving input from memory, which gets confused with the present. This can instill hope, and increase motivation to make finer discriminations between the past and the present.

Methods of restructuring the meanings of early memories have been used in cognitive therapy for personality disorder and childhood abuse (e.g. Arntz & Weertman, 1999; Layden, Newman, Freeman & Byers Morse, 1993). However, little emphasis has been placed on restructuring the meanings of memories in anxiety disorders other than PTSD. This might be important if recurrent images are in some sense "stripped down" versions of upsetting memories, evoked like PTSD intrusions without a time-code. There are case studies suggesting that such techniques can be effective (see Hackmann, in press). An intervention to restructure a memory was carried out with a man suffering from agoraphobia, who had recurrent images of being taken to hospital, kept there forever, and never visited. These images echoed his memory of being taken to hospital aged three, and left there without explanation. At the time he had concluded that his parents (who had told him he was an unwanted child) had abandoned him. However, he had ignored subsequent evidence that they did love him. He inserted corrective information into the imagery by appearing as an adult when his parents were discussing whether he should be sent to hospital. He informed them that if they did this without explanation he would conclude that they did not love him, and would suffer from agoraphobia as an adult. He explained that there were studies that indicating that hospital admission could lead to severe distress in a small child. He imagined the scene again, but visualized his parents telling him that they did love him, and would take his views seriously. He imagined being in hospital, with his mother sitting by his bed. The affect dropped dramatically, and so did the frequency of his panic attacks.
Studies could be conducted to look at the efficacy of restructuring the meanings of upsetting memories in individuals with Axis I disorders. In cases of OCD with a history of PTSD (de Silva & Marks, 1999) it would be interesting to test the effects on the OCD symptoms of transforming the meanings of the traumatic experiences. There might also be a use for such techniques in social phobia, where bullying in adolescence may have led to social phobia (Hackmann et al, 2000), or in agoraphobia where there may have been a history of neglect or assault (Day, Holmes and Hackmann, in press).

2.2.4.2. Maximizing opportunities for cognitive change during in-vivo exposure. It was suggested above that in-vivo exposure (like imaginal exposure) provides opportunities for spontaneous cognitive change of various kinds. If this does not happen spontaneously in PTSD the patient is encouraged to note all the differences they can find between the current situation and the traumatic event, rather than only processing the similarities. For example, someone who had been raped might avoid intercourse with her husband because he has a few physical characteristics that trigger memories of the rapist. She could be asked to deliberately identify and focus on all the aspects that are different (e.g. his voice, the colour of his hair, his respect for her, etc.). This process of stimulus discrimination can be extended into a behavioural experiment: a patient involved in an accident with an ambulance could be asked to watch ambulances arriving at a hospital, and note that none of them crashed into her.

Similar procedures are used in the other anxiety disorders. In-vivo exposure is often used in cognitive behaviour therapy, and several studies indicate that for greatest therapeutic effect it is important to instruct individuals to pay close attention to stimulus properties of feared situations, rather than not giving them instructions, or suggesting that they distract themselves (e.g. Mohlman & Zinbarg, 2000; Kamphuis & Telch, 2000). Additional benefit may be obtained if the patient to is asked to drop their safety seeking behaviours and test their predictions about what will happen (Salkovskis, Clark, Hackmann, & Gelder, 1998). This provides enhanced opportunities for the person to compare catastrophic images triggered in the situation (which may involve implicit memory for past traumatic experiences) with what is actually happening now.
The cognitive re-appraisal that sometimes occurs spontaneously in in-vivo exposure can be prompted for more strongly by the use of behavioural experiments of many kinds, in which anxious patients make predictions before exposing themselves to frightening situations (Bennett-Levy et al, in press). Thus, a wasp phobic with an intrusive image of a wasp flying into his ear could be encouraged to observe that the wasp present now is behaving differently. People with agoraphobia who are afraid of the interpersonal consequences of collapsing can be encouraged to compare their images with what really happens if they pretend to collapse in public (Hackmann, 1998). Similarly, people with social phobia can benefit from viewing and rating video recordings of themselves, having made detailed predictions of what they will see and hear in the video (Harvey, Clark and Ehlers & Rapee, 2000).

2.2.5. Potentially Relevant Theoretical Models

Lang (1977, 1979) examined emotional imagery, and suggested that the narrow definition of an image as an internal stimulus is theoretically inadequate. He advanced a *bio-informational* theory, and suggested that the emotional image involves stimulus, meaning and response propositions. Lang noted that patients with minimal heart rate responses to imaginal desensitization showed little improvement. Wolpe (1978) had observed something similar: patients who did not experience fear whilst evoking imagery did not benefit from desensitization. This led Lang to suggest that at least some *response* components must be activated for successful emotional processing to occur. If this is true, it lends weight to the custom in cognitive therapy of using imaginal or situational exposure to provide fuller access to affect-laden appraisals than purely verbal exploration of the material.

Foa and Kozak (1986) took the idea of emotional processing a step further: in addition to activating as much of the fear structure as fully as possible, it is suggested that *information* incompatible with its pathological elements needs to be provided. Foa and Kozak provide a comprehensive review of evidence concerning the efficacy of various methods of delivering exposure treatments (e.g. length and medium of exposure, effects of repetition, components accessed in exposure, etc). In addition, Jaycox (1997) has reviewed this research group’s views on the opportunities for spontaneous *cognitive* change provided by behavioural treatments, as described above.
Ehlers et al. (2002) observed that in PTSD intrusive imagery consists of vivid, sensory fragments. The content mainly reflects moments during the trauma that were ‘warning signals’ that the situation was changing for the worse, even if later events contradicted the appraisals made at the time. These intrusive images are easily evoked by situational cues, and are experienced as signaling current threat. For this reason the person avoids situations that trigger them, including deliberately bringing the images to mind. Behavioural and cognitive avoidance results in a lack of opportunities to sort out confused impressions of the trauma, and correct distorted appraisals. The patient is left with an over-generalized sense of threat, partly signaled by intrusive imagery that has not obtained its proper context in autobiographical memory.

Ehlers and Clark (2000) propose that treatment should involve accessing, elaborating and contextualizing the fragmented trauma memories, so that a more realistic overall appraisal of what happened emerges, leading to fewer intrusions and a decreased sense of threat. In addition, intrusive imagery needs to be distinguished from current reality. Like Foa, these authors emphasize not just evoking traumatic imagery, but also providing corrective information. Ehlers and Clark consider that a broader context should be generated, in which intrusions can be reflected upon, updated and amended. This context can be provided in a deliberate, focused manner, using verbal techniques such as guided discovery, and also imagery techniques and behavioural experiments. Findings concerning the similarities between imagery in PTSD and other anxiety disorders (see Hackmann, this volume) suggest that these principles may have wider application, across all anxiety problems.

Dual representation theory (Brewin, Dalgleish & Joseph, 1996; Brewin, 2001) proposes that following trauma two types of memory are apparent. These are verbally accessible memories (VAMS) and memories accessible in response to situational cues (SAMS). SAMS are said to involve sensory, physiological and motor aspects of traumatic experience in the form of analogical codes that enable the original experience to be recreated, as automatically triggered flashbacks or intrusive imagery. This description of SAMS resembles Lang’s description of emotional imagery in psychopathology (Lang, 1977). VAMS are autobiographical memories that can be deliberately accessed, and have been edited, so that the trauma is represented within a complete personal context comprising past, present and future. Brewin suggests that
such memories have received sufficient conscious processing to be transferred to a
long-term store (unlike SAMS which it is suggested have received little conscious
processing).

Brewin further suggests that overcoming fear involves acquiring completely
new representations that are capable under certain conditions of inhibiting the
activation of the original memory representations (SAMS). He contrasts this with Foa
and Kozak’s (1986) suggestion that incompatible information needs to be
incorporated into the original memories. Brewin’s proposition is supported by the
observation that following apparently successful emotional processing the original
type of intrusive imagery may suddenly re-emerge, if there are sufficient matching
cues in the environment. In other words, the original representations have apparently
not been destroyed.

However, such theoretical debate can be side-stepped by accepting Conway’s
premise (Conway, 1997) that memories are always constructions, and are not like
objects in a store. The task in therapy is to engage the patient in processes that help to
ensure that the retrieval process generates memories that encompass autobiographical
knowledge that helps put traumatic experience in as benign a context as possible.

Models of human conditioning suggest that cognitive techniques may be of
some value. It has been observed that stimulus revaluation is possible following a
purely cognitive intervention: telling someone that contingencies have changed can
speed up the extinction of a conditioned fear response (Davey, 1992). The same
model working in the opposite direction accounts for observations of delayed onset of
PTSD: in this case the individual begins to suffer from intrusive imagery only after
hearing information that enhances the awareness of the threat implicit in their own
trauma, e.g. hearing that their rapist has murdered another victim (Davey, de Jong &
Tallis, 1993). These observations suggest that not only encoding but also processes
underlying retrieval of memories are of great theoretical importance, and may include
cognitive factors concerning meanings.

Conway’s model of autobiographical memory has some similar aspects to the
models of Ehler’s and Clark (2000) and Brewin (2001). Conway suggests that
personal events are normally incorporated into an autobiographical knowledge base,
organized by themes and time periods. Making connections and representations of
experience at these levels of themes and personal time periods is thought to enhance
the 'generative' (deliberate) retrieval route, and inhibit the 'direct' (spontaneous) route (Conway, 1997; Conway & Pleydell-Pearce, 2000; Conway, 2002; Conway & Holmes, in press). However, during a very upsetting experience there may be extremely negative, self-defining moments when personal goals are severely challenged. It appears that memories of such moments are aversive when retrieved, and are frequently avoided, meaning that connections with other autobiographical knowledge may not be made. This makes these memories highly accessible to environmental cues, because they are not embedded in autobiographical memory knowledge structures that would attenuate direct access to them. When negative imagery is triggered involuntarily it can 'hijack' attention, and destabilize on-going behaviour, leading to avoidance and other problematic strategies, which again restrict chances to up-date the memories.

Conway, Meares and Standart (in press) further suggest that goals drive human cognition, but cannot be brought to consciousness. Instead, the output of these processes can be experienced as mental representations (including images) or actions. Conway et al. (in press) suggest that spontaneous images are highly associated with goals, and close to actions. These ideas resonate with those of Lang (1977) who also described imagery as reflecting response sets. Furthermore Conway et al. (in press) suggest that negative intrusive imagery represents states of the world that are to be avoided as far as possible, without constraints. In less pathological conditions this avoidance is bounded or constrained, perhaps because positively toned memories and images are linked to the negative ones. Perhaps this is part of what is involved in cognitive-emotional processing.

Wells (2000) also addresses intrusive imagery, and the concept of emotional processing. He proposes a special role for imagery, in that it provides data from memory concerning cause-effect and other temporal relationships. Imagery also combines stimulus information with imagined behaviour, enabling simulation of real world events. As suggested by Conway intrusive imagery may reveal both appraisals and current plans for meeting goals. Imagery can also be manipulated, with regard to stimulus characteristics and responses, allowing the possibility of experimenting in imagination, and examining likely outcomes. These potentially useful functions can be impeded by the use of dysfunctional strategies such as cognitive avoidance, but also other meta-cognitive strategies such as worry or rumination.
This suggestion also resonates with the work of Borkovec, who has suggested that worry may be used by anxious patients as a way of avoiding the more distressing experience of intrusive imagery. (see Borkovec, Ray and Stoeber, 1998). Borkovec suggests that this then interferes with emotional processing. Experimental studies (using the stressful film paradigm) support the idea that engaging in worry following a stressor paradoxically increases the subsequent frequency of intrusive images, relative to focusing on intrusive imagery (e.g. Butler, Wells & Dewick, 1995; Holmes, Brewin, & Henessy, 2004). Worry can be considered as a form of experiential avoidance, which is increasingly recognized as having a central role in emotional disorders (Hayes, Wilson, Strosahl, Gifford & Follette, 1996).

Teasdale (1999) addresses emotional processing within the context of the model of Interacting Cognitive Sub-systems (ICS). He notes that simply dwelling on emotional material may produce mixed results, at least in depression. He describes procedures that may encourage successful cognitive-emotional processing. Within ICS higher-order Implicational meanings are the only level of representation that can directly produce emotion, and these should be activated. However, this should be done in a special way: information coming into awareness should not be reacted to immediately, as this could give rise to ‘mindless emoting’. Instead, information should be held in a temporary memory store (buffer) whilst a wider array of chunks of information are accumulated and considered. The creation of alternative Implicational schematic models depends on the integration of new implicational code with elements from the old patterns. This is best accomplished in what is described as a non-evaluative awareness of present subjective-self experience (mindfulness). In this frame of mind a ‘workspace’ is available for the assembly of new patterns of meaning, including the instantiation of new meta-cognitive appraisals of the imagery, i.e. “I am safe now, this is only imagery, etc”.

There are parallels between these theoretical ideas and the clinical observations described above. Intrusive imagery can become the focus of mindful attention once it is evoked. Holding it in mind in a new context provides an opportunity for contextualizing it amongst a wider array of information. This provides an opportunity for spontaneous restructuring of various kinds meaning, or the application of procedures designed to prompt for cognitive change.
The theoretical frameworks described above indicate possible ingredients for therapeutic interventions to eliminate intrusive imagery. There appears to be a considerable amount of consensus. A review of clinical observations and theoretical models suggests that the following elements may have value: -

- Evoking affect-laden intrusive imagery (provides on-line information about perceived stimulus situation, goals, meanings and response sets)
- Holding the imagery in awareness (so that the contents of consciousness may be inspected and reflected upon, providing opportunities for spontaneous cognitive change)
- Considering how accurately the imagery reflects past, present or future threat, and deliberately making links with other autobiographical memories or knowledge
- Deliberately comparing imagery against current reality
- Maintaining a mindful stance whilst considering intrusions within a broader context: being prepared to think about thinking.

2.2.6. Summary

Therapy for intrusive imagery in anxiety disorders often involves evoking the imagery. This provides an opportunity for accessing distorted appraisals, and can lead to spontaneous cognitive change. Appraisals can be further challenged using verbal and imagery techniques and behavioural experiments to consolidate a more realistic perspective. Where the image can be seen to have its roots in a traumatic experience the memory can be elaborated and contextualized to the point where it is seen as an event in the past, which had a beginning, an end, and no current implications. Fragments of trauma memory are given a time-code, and gain a context amongst other autobiographical memories. This process appears to inhibit involuntary retrieval.

Images signaling current threat evoked during exposure can be compared against current reality, so that the individual can discriminate between 'now' and 'then', by processing those features that the past and the present do not share. The effectiveness of exposure may be enhanced by framing it as a series of behavioural experiments, in which patients articulate predictions (often derived from reflection on intrusive imagery) and compare these against careful observation of reality. Such
procedures lie at the interface between behavioural and cognitive therapies, where distorted appraisals are accessed, reflected upon and then tested out, with further reflection on the results. Intrusive imagery in anxiety disorders provides what Freud might have called a "royal road to the unconscious": intrusions of material that has not previously been adequately consciously processed provide us with an opportunity to reflect upon their content, and update them in such a way that they no longer hijack attention and drive maladaptive behaviour. Input from memory is no longer "out of context or out of proportion, or simply out of time".
References


Part III

3. Professional Dossier
3. Professional Dossier

3.1. Curriculum Vitae: Elizabeth Ann Hackmann

University Department of Psychiatry, Warneford Hospital, Headington, Oxford

Qualifications

University College, London: BSc (Hons) Psychology 1967
Queen's University, Belfast: MSc Clinical Psychology 1969

Appointments

2001- Honorary Lecturer, Institute of Psychiatry, Maudsley Hospital, London

2003 - Consultant Clinical Psychologist, Oxford Cognitive Therapy Centre

1986 - Consultant Clinical Psychologist, (previously Principal Clinical Psychologist) Department of Psychiatry, University of Oxford (research team run by Professor David Clark and Professor Anke Ehlers). Team financed by the Medical Research Council, and more recently by the Wellcome Trust. Group conducts treatment trials and experimental work on cognitive therapy for anxiety disorders

1974-1986 Senior Clinical Psychologist, Adult Mental Health, Professorial Unit, Warneford Hospital.

1972-1974 A.H.A research grant, Senior Clinical Psychologist, conducting treatment trial and experiments on obsessional neurosis.

1970-1972 Basic Grade Clinical Psychologist, Warneford
Aspects of my work: early days

Having done my MSc in Belfast I moved after a few months to Oxford. I worked at the Warneford hospital, as part of a very small department headed by May Davidson. Most of the work involved psychometric assessments, with a small amount of fairly eclectic therapy. Behaviour therapy did not interest me greatly, although I enjoyed working on an area health authority sponsored project on exposure and response prevention in obsessive-compulsive disorder. I also gradually experimented with more experiential techniques (psychodrama, art therapy, etc.). In the early 1980s the department was growing steadily, and supervision in cognitive therapy became available. I found this extremely valuable, as I thought that the framework encompassed all the phenomenology I was interested in, and provided a comprehensive plan for therapeutic endeavours.

Partnership with the voluntary sector

Whilst I was working in the Day Hospital at the Warneford the development worker from MIND in Oxfordshire approached me. She and I set up a working party to look at possible local developments in Day Care. A pilot Day Centre called Acorn was set up, and there are now 14 similar centres in the County. Cognitive behaviour therapy (CBT) was seen as compatible with Mind's philosophy and ethos, and we worked together to set up and evaluate many successful CBT groups; for anger, anxiety, depression, and tranquilliser withdrawal.

More recently I encouraged a friend to teach Mindfulness Based
Stress Reduction groups through MIND, and we have submitted a paper summarising the encouraging results. I also helped edit a book about initiatives in the voluntary sector, called "Making it happen", and wrote a chapter in it about partnership between the voluntary and statutory sectors. For many years I sat on the Day Care Development Committee and the Executive committee of MIND, in my own time. These links made it feasible to launch the agoraphobia project described elsewhere in this dossier under the auspices of MIND.

**Research group experience**

Inspired by cognitive therapy, I repeatedly sought supervision from David Clark when he first joined the University Department of Psychiatry. I applied for a job with David and Paul Salkovskis in 1986, and started my research career, as part of a team funded first by the Medical Research Council, and later by the Wellcome Trust. We have developed cognitive models for panic disorder, agoraphobia, hypochondriasis, social phobia and post-traumatic stress disorder (PTSD). The blend of therapy, model building, outcome trials and experimental work has been very satisfying. I have had the opportunity to develop my own research interests. This work in our research group has been the largest and most vital part of my career. I now supervise the work on the PTSD trial and some of the other work, at the Institute of Psychiatry in London.

**Teaching and training**

As a spin-off from my research experience I have had many opportunities to teach. I have presented papers and workshops several times every year since 1989 at the BABCP, EABCT and World Congress of Cognitive therapy, both in Britain and abroad.
I have been invited to give workshops to various groups and courses in Britain, Poland, Denmark, Holland, Iceland, the Czech Republic, Switzerland and Ireland, and have done workshop tours in Australia and Canada. I was on the Registration Criteria committee for the BABCP, and wrote a registration document, and I have been part of the scientific committee organising the BABCP conferences on several occasions. I teach on the Cognitive Therapy Diploma Course in Oxford, and teach and supervise on the new Advanced Cognitive Therapy course. I am on the executive committee for both courses. I offer supervision and workshops in Oxford Cognitive Therapy Centre, and have been an examiner on the Cognitive Therapy courses at the IOP in London, and in Oxford (on both courses). I have also taught on various Cognitive Therapy courses (University College and IOP, London; Salford; Tunbridge Wells; Dublin and Newcastle), and on our local D.Clin. Psych. Course.

Weaving the threads together

_Agoraphobia_

Paul Salkovskis and I did pilot work on agoraphobia. Informally we noted that the most severe agoraphobics did not do as well as those with panic disorder who were less avoidant. These observations led to the work described elsewhere in this dossier, on the successful treatment of agoraphobia. The voluntary sector was involved in our efforts to provide treatment to those who found it difficult to access services.

_Work on imagery and its relationship to memory_

This has been a special interest of mine for many years. Clinical observations during our work on PSTD and the other anxiety disorders inspired this interest. I have given many workshops and
lectures on the topic, and have written several articles. With Emily Holmes I am currently editing a Special Issue of Memory on imagery and its relationship to memory in psychopathology, to which Emily and I have both contributed. I have been asked to write an Invited Essay on the topic for Behaviour Research and Therapy. I have supervised several D.Clin.Psych. theses, and examined several other theses concerning imagery.

I worked for several years as a supervisor for Professor Mike Sharpe’s team, who were developing and testing a programme of CBT for Chronic Fatigue Syndrome, and I contributed to several articles on the topic. I also worked as a therapist in a research trial of Masters and Johnston’s sexual dysfunction treatment programme.

**Continuing professional development**

My work in various settings has always been supervised. This supervision became more formal and intensive once I joined research groups. Since 1986 every patient I treated in a trial has been reviewed every week in supervision. In the first year both A.T. Beck and L.G. Ost visited our team, and stayed for several months to train us in cognitive therapy and applied relaxation skills. I also spent a month at the Center for Cognitive Therapy in Philadelphia, where I received further training from Judy Beck, Mary Anne Layden and others. When we were developing new treatment models the supervision was done in a group, during which we abstracted treatment techniques and principles. At other times we had individual supervision.

In addition I have frequently attended workshops on a variety of topics at the conferences I attend each year, and at the BABCP Spring workshops. In addition I have attended a number of advanced CT workshops run by Christine Padesky, in California,
in addition to attending many of her workshops in this country, and workshops by Mary Anne Layden, Paul Gilbert, Melanie Fennell, Gillian Butler and others. This year I attended a one week advanced workshop with Mark Freeston, on the therapeutic process. I have continuously attempted to brush up my computer skills, and have now mastered PowerPoint for presentations. I hope to start the European Driving Licence for computer skills later this year. In the last two years I have become interested in Mindfulness Based Stress Reduction (as taught by Williams, Teasdale and Segal). I attended a week long retreat in 2002, where we experienced the programme, and then were taught how to teach it. In 2003 I attended an eight week programme, again as a recipient of the intervention, and subsequently noticed the beneficial effects: these skills have helped save me from being overwhelmed with stress whilst attempting to complete this dissertation.

Publications

_In press_


**Imagery and memory**


Agoraphobia and panic disorder


**Chronic Fatigue Syndrome**


**Post-traumatic stress disorder**


**Other papers on anxiety disorders**


**Miscellaneous**


**Submitted**


**In preparation**

3.2. Developing an Effective Treatment Service for Agoraphobia

3.2.1. Personal statement

In this dossier I have chosen to write about my work on agoraphobia, carried out over many years. When I began my career the treatment offered was rudimentary: graded exposure and relaxation training, neither of which satisfied the patients or myself. On joining Clark’s team in 1986 I helped to develop a programme of treatment for panic disorder, which could eventually be delivered in a few hours (Clark, Salkovskis, Hackmann, Wells, Ludgate & Gelder, 1999). However, clinical work with more severe patients with extensive avoidance was not so rewarding. Paul Salkovskis and I then worked for some years with patients with chronic agoraphobia, developing a package where, instead of offering cognitive therapy for panic plus some exposure therapy, all the therapy had a cognitive rationale, and involved discussion and behavioural experiments, involving the dropping of safety-seeking behaviours. The next step was to learn how to manage the patients’ tendency to drop out, or avoid sessions. We developed a number of strategies to overcome such problems.

By this time the National Health Service had moved to a point where services were rationed, and appropriate treatment for agoraphobia was largely unobtainable in our area. I therefore considered working with the voluntary sector, with workers from MIND in Oxfordshire, with whom I had often worked. This led to the discovery of a fabulous pool of volunteers- psychology graduates, keen to obtain clinical experience. In my spare time I ran the pilot project described here, and armed with good results persuaded a charity to give us a grant for one year, to finance further training, data collection, and campaigning in Primary Care for permanent funding of the volunteer programme. We also hope to put our project on the web site of the charity that is funding our research this year, as an idea that others could copy. This dossier describes the work in detail.

3.2.2. Introduction

There is a good evidence base for cognitive therapy for panic disorder, and promising developments in the treatment of agoraphobia. However, whilst
randomized trials exist, there has been little emphasis on dissemination. Current priorities in the National Health Service (NHS) mean that individuals with moderate or severe agoraphobia may not receive treatment. In Community Mental Health Teams the emphasis is on treating severe mental health problems, whilst in Primary Care therapists can usually only allocate a few sessions to each patient. People with agoraphobia find it difficult to reach services, and may appear unmotivated. Yet agoraphobia can be chronic, disabling, and co-morbid with other disorders. Effects on families may be profound.

The NHS is looking for brief evidence-based interventions for common mental health problems that could be delivered in Primary Care, perhaps by new graduate workers (Anne Richardson, Senior Policy Adviser at the Department of Health, 2002). This dossier describes the development of such an intervention.

The project was initiated after research in Oxford had demonstrated that highly effective, brief treatment for panic disorder was possible, and that with adaptations the programme was beneficial even to those with moderate to severe agoraphobia. However, local NHS colleagues noted that patients with agoraphobia were not receiving adequate care. The lengthy sessions required, the need for travel to patients' homes, and frequent cancellations and dropouts due to patient anxiety, made delivery difficult. A working group was set up to look creatively at this gap in service provision.

This dossier outlines the development of the treatment programme, and the recruitment, training and supervision of the volunteer therapists who took part, the majority of whom turned out to be psychology graduates wanting clinical experience.

3.2.3. Pilot project

3.2.3.1. Planning. This project was a joint venture between locally based clinical psychologists, and MIND in Oxfordshire (a voluntary agency, running many Day Centres in Oxfordshire). For many years clinical psychologists (including the author) have worked in partnership with MIND in Oxfordshire. Often cognitive behaviour therapy (CBT) groups have been run initially by psychologists and MIND workers, and later by MIND workers alone. MIND finds CBT consistent with their ethos, since it aims to empower people, and explicitly help them develop strategies for managing emotions.
A working group set up by the author looked at the feasibility of psychologists training volunteers (recruited by MIND) to treat agoraphobics. Members included: the author; two NHS clinical psychologists; the Development Worker for MIND in Oxfordshire; and two MIND Day Centre co-ordinators. After initial discussion it was agreed that the treatment would be carried out on an individual basis, possibly with an additional support group for patients.

A series of planning meetings took place at Mount House in Witney, which at that time housed both the Community Mental Health Team (CMHT) and a MIND Day Centre with open access.

The following decisions were taken:

1. **Location:** West Oxfordshire seemed suitable, as statutory and voluntary services worked and were housed together there. Mount House is in the town centre, with access to shops and bus services. A need had been expressed there for an agoraphobia support group.

2. **Volunteers:** MIND would recruit volunteers, through their usual channels (advertising, word of mouth, enquiries to the MIND office, etc). Existing volunteers could take part. All volunteers would be offered training, but need not continue after training. No special type of volunteer was sought. We were interested to see who would apply.

3. **Training:** All volunteers recruited, a West Oxfordshire clinical psychologist and a MIND worker with considerable experience (including a Diploma) in cognitive therapy, were to be offered two one-day workshops separated by a week, plus monthly group supervision provided by the author. This amount of training had been successfully offered to health professionals in other settings attempting to replicate our research group’s results for panic disorder. In addition volunteers could seek informal supervision at any time (from the CMHT psychologist, the MIND worker, or from the author).

4. **Referrals:** Local GPs would be alerted to the service, and encouraged to refer suitable patients. The CMHT psychologist or the MIND worker would assess these, and suitable patients from the CMHT waiting list. A volunteer would be present at each assessment.

5. **Assessments:** Patients would be accepted if they met criteria for agoraphobia,
with or without panic disorder, as their main problem. Patients would be excluded if they were suicidal, depressed to an extent requiring other treatment, or met criteria for substance dependence or borderline personality disorder. Excluded patients would be offered treatment through the usual channels. Assessments would be made using the Structured Clinical Interview for DSM-IV (First, Spitzer, Gibbon & Williams, 1995).

6. **Therapists:** Each patient would start treatment with the psychologist or MIND worker, with the volunteer as co-therapist. Once the volunteer felt confident (usually after 1-2 sessions) they would take over.

7. **Setting:** Patients would be offered assessment and initial treatment at the CMHT, and then the location would shift to the patient’s home, shopping centre, etc.

8. **Sessions:** Long sessions (up to two hours) were scheduled, to allow for travel, and in-vivo work. Sessions were held weekly for about twelve weeks, followed by three monthly follow-up sessions. However, flexibility was encouraged where appropriate.

9. **Information pack:** Volunteers, the psychologist and the MIND worker were provided with an information pack. This pack contained copies of the teaching materials, two articles (Clark, 1996; Hackmann, 1998), and the self-help materials the author had developed for the brief treatment study (Clark et al., 1999) to show the outline of the panic treatment.

10. **Notes:** A treatment file was completed for each patient. Four questionnaires were filled in each week. Notes were kept safely at Mount House.

11. **Ethics:** Approval was sought from the Mental Health Trust. Honorary contracts were issued to volunteers. Initially we felt that since the volunteers were recruited through the voluntary sector the Ethics Committee need not be approached. However, we decided that since patients were recruited from GPs via the CMHT this decision should be reversed. Patients were advised that their main therapist would be a supervised volunteer. No one objected. If they had done so, they would have been kept on the usual waiting list for CBT.

12. **Duration:** We decided to run the project for one year, and then review. Initial training took place, and then volunteers and staff from the two organisations began to treat patients and gather data. Unfortunately there were some delays
(waiting for the Ethics Committee, staff sickness and leave). 3.2.3.2. Review. This took place at the end of the year, and we decided to carry on and collect more data. The MIND worker left, and was replaced by a clinical psychologist in another CMHT. MIND decided to withdraw from the project. This was because it appeared that we were able to recruit suitable volunteers without their help, and the type of volunteer attracted were different from their usual volunteers. Most had heard of the project by word of mouth, and we had new volunteers keen to join in. In addition, the MIND worker who had been most heavily involved had left.

3.2.4. Report at the end of the pilot phase

3.2.4.1. Volunteers. Thirteen volunteers were recruited, and eleven still wished to take part after the training event. The two volunteers who dropped out were already working for MIND in a Day Centre. Interestingly all the volunteers who initially took part had Psychology degrees, and wanted clinical experience. Most of them lived in or near Oxford rather than Witney. Several more volunteers came forward during the first year. Most of the original volunteers moved away, but the two who remained wanted to continue, and were joined by six new volunteers. One was training as a counselling psychologist. Five of the new volunteers had psychology degrees, and the sixth was a mid-wife. She found the cognitive therapy perspective difficult, but did well with her patient. A fresh two-day training event took place at the start of the second year for the new volunteers and the new CMHT psychologist. Two of the old volunteers helped with the training.

The volunteers were a joy to work with, and very motivated. There appears to be a constant supply in Oxford. Both local universities offer Psychology degrees, and Psychology graduates are attracted to posts as research assistants at the Warneford Hospital, and need clinical experience. We decided that we should require that future volunteers should have some background in mental health.

At the end of the pilot study, volunteers filled in a short questionnaire. Results indicated that they appreciated the training, and enjoyed the experience, rating their sense of competency highly. Their only frustration was the limited opportunity they had to carry out treatments, due to initial delays, and the rate-limiting number of
patients the professionals could assess and launch into treatment. The professionals and the patients valued the input of the volunteers.

3.2.4.2. Patients. Fifteen patients were assessed, and 14 were taken on for treatment. Most patients preferred treatment at or near home. Predictably, there were many cancelled appointments (due to the avoidant features of agoraphobia). We decided on a policy of addressing this at the start of treatment, and as we went along (see section 3.2.4.5). Three patients dropped out after the first session. On average the patients had 12 sessions of treatment. Some sessions were quite long, and were carried out in shopping centres etc.

3.2.4.3. Training. Everyone appreciated the training sessions, information pack and informal supervision. Volunteers liked the group supervision, but would have preferred it to take place once a fortnight, rather than once a month.

3.2.4.4. Results. All patients were asked to complete questionnaires just before each session, as they do in the local psychology department. Eleven patients have completed treatment with a combination of a trained staff member and a volunteer who did most of the treatment sessions alone. To date two volunteers have had the opportunity to treat a second patient entirely on their own. On the Beck Anxiety Inventory (BAI) ((Beck, Epstein, Brown, & Steer, 1988), the Beck Depression Inventory (BDI) (Beck, Ward, Mendelson, Mock, & Erbaugh, 1961), the agoraphobic avoidance sub-scale of the Fear Questionnaire (Marks and Mathews, 1979) and the Agoraphobic Cognitions Questionnaire (unpublished version, Oxford anxiety disorders research group) there were clinically significant drops in scores. Effect sizes on the BAI and BDI are directly compared below with those for all patients with panic disorder/agoraphobia who completed a course of treatment and filled in the questionnaires in 1997 and 1998 in the Psychology Department. Uncontrolled pre-post effect sizes were calculated, to provide a crude bench-mark against which to make comparisons (Chambless & Gillis, 1993; Smith & Glass, 1977).

The formula used was: - effect size = \( \frac{\text{mean pre-test} - \text{mean post-test}}{\text{standard deviation pre-test}} \)
We do not have comparative data for the other measures. The results obtained by the volunteers compare favourably with the other results presented, and the dropout rate was fairly low (3 patients left after the first assessment session, before starting treatment with the volunteer).

Tables 1 and 2, of means, standard deviations and effect sizes for BAI and BDI obtained by volunteer therapists and local psychology department

Table 1.

Beck Anxiety Inventory

<table>
<thead>
<tr>
<th>Therapists</th>
<th>N</th>
<th>Start Mean</th>
<th>Start S.D.</th>
<th>End Mean</th>
<th>End S.D.</th>
<th>Effect Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volunteers</td>
<td>11</td>
<td>29.82</td>
<td>(12.96)</td>
<td>7.82</td>
<td>(9.76)</td>
<td>1.69</td>
</tr>
<tr>
<td>Clinical psychologists</td>
<td>22</td>
<td>23.3</td>
<td>(10.5)</td>
<td>13.8</td>
<td>(10.4)</td>
<td>0.80</td>
</tr>
</tbody>
</table>

Table 2.

Beck Depression Inventory

<table>
<thead>
<tr>
<th>Therapists</th>
<th>N</th>
<th>Start Mean</th>
<th>Start S.D.</th>
<th>End Mean</th>
<th>End S.D.</th>
<th>Effect Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volunteers</td>
<td>11</td>
<td>21.73</td>
<td>(12.76)</td>
<td>3.82</td>
<td>(4.22)</td>
<td>1.40</td>
</tr>
<tr>
<td>Clinical psychologists</td>
<td>39</td>
<td>17.8</td>
<td>(8.5)</td>
<td>10.7</td>
<td>(8.8)</td>
<td>0.83</td>
</tr>
</tbody>
</table>
Tables 3, 4, and 5, of means, standard deviations and effect sizes for the FQ and ACQ Frequency and Severity (volunteers only) respectively.

Table 4.
Fear Questionnaire

<table>
<thead>
<tr>
<th>Therapists</th>
<th>N</th>
<th>Start Mean</th>
<th>Start S.D.</th>
<th>End Mean</th>
<th>End S.D.</th>
<th>Effect Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volunteers</td>
<td>8</td>
<td>26.38 (10.85)</td>
<td>7.25 (8.24)</td>
<td>1.76</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 5.
Agoraphobic Cognitions Questionnaire: Severity

<table>
<thead>
<tr>
<th>Therapists</th>
<th>N</th>
<th>Start Mean</th>
<th>Start S.D.</th>
<th>End Mean</th>
<th>End S.D.</th>
<th>Effect Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volunteers</td>
<td>10</td>
<td>557.5 (309.99)</td>
<td>45.90 (105.13)</td>
<td>1.65</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Table 6.
Agoraphobic Cognitions Questionnaire: Frequency

<table>
<thead>
<tr>
<th>Therapists</th>
<th>N</th>
<th>Start Mean</th>
<th>Start S.D.</th>
<th>End Mean</th>
<th>End S.D.</th>
<th>Effect Size</th>
</tr>
</thead>
<tbody>
<tr>
<td>Volunteers</td>
<td>10</td>
<td>41.8 (12.06)</td>
<td>18.8 (7.00)</td>
<td>1.91</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*Uncontrolled pre-post effect sizes are reported in these tables.
3.2.4.5. Conclusions after Phase 1. This study was intended as a feasibility study. The findings are as follows:

1. There is a plentiful supply of appropriate volunteers
2. Most live in Oxford, and do not have cars. It would work better to run the project in Oxford
3. Since most volunteers are students obtaining work experience they may be available for a year at most. Therefore it would be important to run a two-day training event at the beginning of the academic year, and commence treatment as soon as possible.
4. To get the most out of the volunteers it might be useful to have more dedicated time from professionals initially each year, to “launch” the wave of new volunteers.
5. The volunteers supported each other informally, by Email and by meeting up occasionally. This could be encouraged in future. A volunteer organised an Email address book.
6. Most patients benefit substantially. For example, one began treatment totally housebound, with severe depression, panic attacks, insomnia, and obesity. At the end of treatment she no longer had panic attacks and slept well. She was working, losing weight, and able to shop and travel. She was not depressed, and was happily preparing to get married. Another patient who had not been to the cinema or a shopping precinct for 28 years was now able to do so regularly, with much pleasure.
7. To deal with missed appointments we developed a policy of initially discussing with patients the fact that they might want to avoid some sessions. We asked them to contact us if this happened, and sought permission to ring and check if they were coming, if this was in doubt. Telephoning provided an opportunity to discuss fears and reschedule without delay. Occasionally phone calls were made by mobile phone from a doorstep, to the fearful patient within! This type of communication helped prevent long gaps and demoralization.
8. The volunteers wanted to move quickly into treating patients on their own. It would be interesting to see what they might achieve alone (after training, and under supervision).
9. Despite their ability volunteers need training, supervision and co-ordination of their activities. They need petty cash for travel expenses. The project does require some funding.

10. Clinical psychologists can carry out assessments and the first few sessions during their normal workload. Most patients can attend for assessment. Thereafter, sessions may need to be carried out by the volunteer, in or near the patient's home.

11. Training must address various issues, in addition to standard cognitive therapy for panic. These are described in the section on training components.

It is possible to gain significant clinical improvement in agoraphobia in few months. Nevertheless, service provision is not easy. Patients need to be seen at or near home, and are likely to cancel appointments. Volunteers provide a good blend of enthusiasm and flexibility.

3.2.5. Future plans

We have decided that this project would work better in Oxford for several reasons:

1. Most volunteers live and work in Oxford. There are plenty of suitable patients available through Primary Care, where psychologists are frustrated by time pressures, and welcome the help of volunteers.

2. Such a service could potentially provide a useful training experience for others based in Oxford, such as medical students, clinical psychology trainees, interested GPs, etc.

3. Several psychologists in the city are keen to take the project over.

4. We have obtained a grant from a charitable trust willing to finance a more carefully organized and evaluated phase of the project, in Primary Care. If we can demonstrate our expertise, and efficient service delivery, to the Primary Care Trust this might persuade them to set up a dedicated clinic for panic and agoraphobia, staffed largely by well-trained volunteers (or paid graduate workers) and students wanting to treat cases with CBT, under supervision.

5. A new steering group has been set up, secured the grant from the charitable trust, and set a much more ambitious target.
trust, and promoted the idea of a further pilot project in Primary Care. This group consists of two clinical psychologists in Primary Care and the author. We are liaising with general practitioners and psychiatrists interested in improving medical student teaching on evidence-based psychological therapies. This is with a view to being able to incorporate self-selected medical students into the scheme. They would need to go through the two days of training, which might therefore have to be offered at other times during the academic year. They could draw patients from the same pool, taking those with less extensive avoidance, and might treat them more intensively under supervision.

3.2.6. Treatment components for agoraphobia

In this project the treatment was based on Clark’s cognitive model of panic disorder, with adaptations made by our group for the treatment of more avoidant clients.

3.2.6.1. Treatment of panic disorder. The cognitive model of panic disorder (Clark, 1986) suggests that people who suffer from panic attacks do so because they have a relatively enduring tendency to misinterpret bodily sensations as being indicative of an impending physical or mental catastrophe. Cognitive therapy aims to remove this tendency, and overcome avoidance secondary to panic.

Cognitive therapy for panic disorder has been shown to produce high-end state functioning in more than 80 percent of patients in randomized controlled trials, and to be superior to an equally credible psychological treatment or drug treatment, both immediately and at follow up (Beck, Sokol, Clark, Berchick, & Wright, 1992; Clark et al, 1994; Arntz & van den Hout, 1996; Ost & Westling, 1995 ) In these studies almost all patients met criteria for panic disorder with no, mild or moderate agoraphobic avoidance on the SCID (Structured Clinical Interview for DSM IV: First, Spitzer, Gibbon &Williams, 1995). Treatment included verbal discussion and behavioural experiments to help individuals understand possible causes and consequences of bodily sensations misinterpreted as likely to have catastrophic mental or physical consequences.
Subsequently we cut the amount of active treatment from 12 to 4.5 hours. The author developed self-help materials for the patient, as an adjunct to therapy. One of the four sections was completed before each session, during which the therapist focused on consolidating and extending the material. The results for individuals with panic disorder and no, mild or moderate agoraphobic avoidance were as good as those obtained after twelve sessions with a therapist (Clark et al., 1999).

By now it was clear that the relevant work involved:

i. Understanding the cognitive model of panic, and links between symptoms, catastrophic thoughts and emotions.

ii. Identifying triggers for panic

iii. Using verbal discussion and behavioural experiments to generate alternatives to catastrophic beliefs

iv. Understanding the role that avoidance and safety behaviours play in keeping the problem going

This set of ideas formed the backbone of our treatment for the patients treated in this study, and formed the subject matter for the first day of training. The information pack contained an article on cognitive therapy for panic, and the self-help materials, to guide the thinking of the volunteers.

3.2.6.2. Treatment of agoraphobia. There have been fewer studies on cognitive therapy for individuals with severe agoraphobia. Exposure therapy has been shown to be moderately effective for agoraphobics of mixed severity, although one third were not significantly improved (Mathews, Gelder and Johnston, 1981; Chambless and Gillis, 1993). Michelson and Marchione (1989) carried out a large study of patients meeting DSM-III criteria for agoraphobia, randomly allocated to cognitive therapy or relaxation with graded exposure, or exposure alone. All treatments produced significant reductions in panic and phobic avoidance, but any significant differences favoured cognitive therapy plus graded exposure, an approach quite widely used today.

The author worked with Paul Salkovskis on an unpublished case series of patients with panic disorder and moderate or severe agoraphobia. We used cognitive
therapy for panic and asked patients to do exposure and behavioural experiments for homework. Some good results were obtained. However, for individuals with extreme scores on the agoraphobic avoidance sub-scale of the Fear Questionnaire (Marks & Mathews, 1979) the results were modest. We became interested ways of adapting treatment in cases with greater agoraphobic avoidance, and conducted two more studies (Salkovskis, Clark, Hackmann, Wells, and Gelder, 1999; Salkovskis, Hackmann, Clark, Wells & Gelder, in preparation). These adaptations are described below. For a more extensive review of our conclusions see Hackmann, 1998.

3.2.6.3. Adaptations to cognitive therapy for panic with more avoidant clients.

The difficulties encountered with patients with extensive avoidance, and suggestions for overcoming them, are outlined below. This is a brief summary of the review written by the author, on the basis of research, the literature, and clinical observation. This formed the content for Day 2 of training.

1. A suitable environment for therapy.

Most people suffering from anxiety can attend a clinic. Agoraphobia makes attendance anxiety provoking or impossible. The therapist may have to allocate time to travel to the patient's home. Patients need to be socialized to treatment, so that the situation does not become a "coffee morning". The more avoidant the client the more anxious they will be to postpone the business of the session. Such issues may have to be discussed openly.

An important aspect of therapy is to ensure that relatives or friends are not expressing unhelpful beliefs between sessions. For example, a spouse may fear that the patient will really collapse or lose control, and urge a return to home if fear increases.

2. Detailed examination of recent panic attacks.

During each session the patient describes a recent panic attack, and what they were doing, thinking and feeling. The vicious circle model is repeatedly generated, so the patient understands how to break into it. This is helpful, unless patients use cognitive avoidance because they fear thinking
directly about attacks. This can prove frustrating, unless skilful questioning is used.

The therapist needs to overcome the patient's tendency to speak vaguely, using euphemisms, rather than expressing frightening thoughts. The therapist summarizes frequently, works slowly, and if relevant suggests to the patient that they seem to have unvoiced fears. It is important to investigate specific links between particular thoughts and bodily sensations, and to enquire about images, to disambiguate meanings.

Accompanying the patient into a feared situation helps to access frightening thoughts, images and memories. This is useful for clients who may not know what will happen in a feared situation, and do not wish to find out. Patients often want to leave once they begin to feel anxious, but may be persuaded to return after withdrawing briefly, and discuss the fears evoked. Having identified the feared catastrophe it is possible to test it then and there, through discussion and behavioural experiments.

3. Changing misinterpretations of bodily sensations

Patients may be afraid to attempt behavioural experiments. Many are afraid to hyperventilate, because they fear that it could damage them (the very belief which the experiment could disconfirm). It may be possible to hyperventilate several times, gradually increasing the time. Also the therapist can hyperventilate, emerging unharmed. One can also provide reassuring information. For example, subjects in experiments have hyperventilated for 45 minutes without harm. Nevertheless, avoidant patients may still refuse experiments. The therapist can make use of incidental observations to illustrate points. For example, a patient might get anxious whilst describing a panic attack, and complain of feeling dizzy and confused. They could then be asked to reflect on how they felt before they spoke about the panic attack, and what that suggests about the likely cause of their dizziness.

The therapist's creativity will be taxed with more avoidant clients. Therapists will need to look for patterns in the symptoms of which patients are unaware, and plan experiments to test hunches. It may not be best to explain the rationale for experiments in advance.
Cognitive therapy for panic emphasizes the importance of identifying and dropping safety-seeking behaviours. These include tensing one's legs to prevent falling, or breathing deeply to prevent suffocation. These behaviours should be dropped, to allow the discovery that panic symptoms are not harmful. Leaving safety-seeking behaviours intact reinforces the idea that one has just saved oneself from a feared catastrophe (Salkovskis, Clark, & Gelder, 1996). This seems important in agoraphobia, to speed up progress made during exposure, by enabling patients to directly test their frightening predictions. (Salkovskis et al., 1999; Salkovskis et al., in preparation). There are many subtle safety-seeking behaviours, and ultimately it is important to drop them all. Meaningful links exist between within-situation safety behaviours and specific catastrophic beliefs.

4. Working with images.

Sometimes patients report images of catastrophic outcomes of panic. The contents can often be dealt with using discussion and behavioural experiments, but sometimes it can be more effective to use imagery techniques. Images often depict a possible future catastrophe, and stop at the worst moment. It can be useful to finish out the image and thus decatastrophize the catastrophe.

One patient feared vomiting. This started at a wedding, when he suffered food poisoning. He had recurrent images of vomiting in department stores. He was asked to imagine vomiting, stay with the image, and picture what would happen next. The anxiety dropped, as he pictured staff from the store arriving, cleaning up, leading him to a restroom, and phoning for a taxi.

Sometimes finishing out the image leads to even more frightening images. In such cases more complex transformations can be helpful (Hackmann, 1997).

Clinical observation suggests that it may be worth attending to images or memories experienced during panic attacks. Many recurrent images depict feared future outcomes, but on closer examination reflect traumatic early experiences (Day, Holmes & Hackmann, in press). Understanding that recurrent images reflect the past rather than present reality helps decrease fear,
and also provides material for behavioural experiments. More elaborate interventions for traumatic memories are possible (see cognitive-emotional processing review, this volume 2.2.), but are beyond the scope of the volunteers.

5. Identifying triggers for panic attacks.

During therapy the patient is helped to identify triggers for panic. This can be difficult, as patients often feel that attacks come out of the blue. Triggers are sometimes unrecognised emotions. Chambless and Goldstein suggest that some agoraphobics fear negative feelings, leading to failure to recognize emotions. They speculate that childhood insecurity leads to suppression of painful feelings, and to catastrophic misinterpretation of arousal (Chambless & Gracely, 1989; Goldstein & Stainback, 1991). In therapy the individual may need to learn to recognize and express feelings appropriately.

6. Overcoming avoidance.

It is interesting to wonder why some people with panic disorder become avoidant (Clum & Knowles, 1991). This is puzzling, since many avoid public places, where one might expect more help to be available than at home, in the event of panic. Several studies suggest that agoraphobics may share the concerns of those with social phobia, fearing that panic symptoms would attract unwelcome attention. To test such beliefs the therapist can mimic anxiety symptoms (shaking, walking in a wobbly way, etc.) whilst the patient observes the reactions of others.

The generic cognitive model of anxiety suggests that it results not only from overestimation of the probability of danger, but also from an overestimate of the likely cost, and underestimate of coping and rescue factors (Beck, Emery & Greenberg, 1985). Interestingly, images provide rich information about concerns in agoraphobia, indicating that indeed it is not only the perceived probability of a physical or mental catastrophe that is exaggerated, but also the imagined interpersonal cost, together with doubts about ability to cope or be rescued. Such concerns are particularly salient in
public, or whilst alone. For example, agoraphobics fear fainting more than panic patients without agoraphobia (Arntz & van den Hout, 1996; Telch, Brouillard, Telch, Agras, & Taylor, 1989), perhaps because they have worse fears about how others would react. Some fear an embarrassing crowd, whilst others think everyone would ignore them. In both cases they may fear never reaching home. Behavioural experiments in which the therapist pretends to collapse while the patient observes how others really react can prove very helpful.

The literature also suggests that agoraphobics worry about their ability to cope (for a review see Hackmann, 1998). Low scores on measures of perceived self-efficacy or self-sufficiency predict situational avoidance more strongly than catastrophic beliefs about panic symptoms. Panic patients with high levels of situational avoidance are more likely to meet criteria for dependent personality disorder. A high degree of dependent behaviour has been reported in patients prior to the onset of agoraphobia. Some patients with agoraphobia have problems with separation anxiety, which is also elevated in their relatives. A history of school phobia is more common in agoraphobia than in panic disorder without agoraphobia. These findings indicate that agoraphobics may have had early lives characterised by beliefs that it is difficult to cope alone. An important aspect of therapy is to challenge fears about not coping. Therapists can help patients set up behavioural experiments to test such predictions. Could the patient cope, and would people help them if they felt ill when away from home?

Thus two features of agoraphobia, which appear in the DSM – IV definition, may require more therapeutic attention than they do in the treatment of panic disorder. These are fears that escape may be embarrassing, or help unavailable in the event of a panic attack, or panic-like symptoms. A good way of dealing with such concerns is to conduct a series of behavioural experiments in which the beliefs are tested: if the therapist mimics anxiety symptoms or feared catastrophes like fainting or vomiting what are the real interpersonal consequences? The patient observes the reaction of others, and whether a crowd gathers, hospitalization or ridicule occur, and so forth.
3.2.6.4. Workshops. The two training days were workshops, each lasting for about six hours. These were separated by one week. Teaching involved short didactic presentations, illustrated by video material from treatment sessions with patients suffering from panic disorder and agoraphobia. The volunteers also worked in pairs, practicing the assessment and treatment strategies they had been taught. The material included learning about the cognitive model of panic, how to socialise the patient to the model, and how to carry out the treatment, using discussion and behavioural experiments. It also involved learning how to adapt the programme for more avoidant clients. On the final day they worked in pairs, role-playing a patient and a therapist, and went out into the town to practice carrying out behavioural experiments in a public place. These included testing reactions to a simulated “faint” by the therapist.

3.2.7. Summary

Cognitive therapy has much to offer in the treatment of agoraphobia. However, therapists need plenty of practice at thinking on their feet. Some clients pose tough problems, and the therapist must be aware of their more subtle aspects. In addition to the points mentioned when treating panic disorder the following factors need to be taken into account:

a) Cognitive avoidance, difficulty in putting thoughts and feelings into words, and difficulty spotting triggers for attacks.

b) Reluctance to do behavioural experiments, and drop safety-seeking behaviours. Social evaluative concerns. Fears about the likely interpersonal cost of a feared physical or mental catastrophe, and fears of not being able to cope. Feared shortage of rescue factors. Separation anxiety and dependency issues.

c) Recurrent images, and links to past traumatic experience.

The major areas of difficulty in panic disorder and agoraphobia have been outlined here, together with ideas about how to tackle them. Despite the complexities the results can be extremely rewarding, when after years of avoidance large areas of life are reclaimed.
The major problem lies in the practicalities of delivering a treatment service. By definition people with agoraphobia are afraid of leaving home, and there is better generalization if treatment is carried out near home. Treatment sessions tend to be long, and involve travel. Therapists have to be patient, and cope with cancelled appointments. Progress is quicker if sessions can be given close together. Therapists need to have a good repertoire of ideas, for tackling catastrophic misinterpretations of bodily sensations and interpersonal fears.

Despite these constraints, such a service has the potential to be extremely beneficial to people with this crippling disability. Supervised student volunteers, who have had adequate training, may have a valuable contribution to make. Although there are some financial costs to the service, in terms of training, supervision and materials, these are out-weighed by the benefit of having a lively work-force who offer the flexibility necessary for the effective treatment of agoraphobia.
References


Part IV

4. Research Dossier
Note

This is an extended (double length) version of a study to be published with this title, in the Journal of Traumatic Stress, 2004. The authors of the original paper are Ann Hackmann, Anke Ehlers, Anne Speckens and David Clark. The author designed the interview and the questionnaire, and carried out the interviews. A fresh rating scheme for classification arose from group discussions. The author collated the material for the independent raters, and analyzed the results with guidance from Anke Ehlers. The two first authors worked on drafts for publication. The second and third authors have agreed to the submission of this piece of work for the Research Dossier, and agree with this statement concerning my input. The original data is still available if required.

The author has extended the work in various ways for this dossier. The introduction and discussion are more detailed, with extra references. The method and results sections have also been elaborated, to reveal more details of the procedure, and the thinking behind the analysis of the results. More figures have been added, and case studies of two patients treated by the author have been incorporated to further examine the phenomenology, and reflect on its theoretical significance.
4.1. Characteristics and Content of Intrusive Memories in PTSD and Their Changes with Treatment

4.1.1. Abstract

Although intrusive re-experiencing is a core symptom of post-traumatic stress disorder (PTSD), relatively little is known about its phenomenology. The present study assessed the characteristics and content of intrusive trauma memories in 22 patients with chronic PTSD, and followed their changes in the course of cognitive behavioral treatment. An Intrusions Interview was administered before treatment, and followed by weekly Intrusions Questionnaires, completed at the start of each therapy session. Patients initially reported a small number of different intrusive memories (1 - 4, \( M = 2.2 \)) that occurred in an invariable, repetitive way. The intrusions were distressing and had vivid perceptual content. They were described by patients as feeling as if they reflected something happening in the “here and now.” With therapy, the frequency, vividness, distress, and ‘nowness’ of the intrusions faded gradually. There was no significant exacerbation with imaginal reliving. Independent raters classified the content of intrusions, using transcripts and categories based on the results of previous studies and on clinical observations. Ehlers et al.’s (2002) hypothesis that intrusive memories are usually of warning stimuli that signaled the moments with the greatest emotional impact was tested. The results were consistent with this hypothesis. Further suggestions for research are discussed. Two case studies are presented.

4.1.2. Introduction

Intrusive re-experiencing is a core symptom of post-traumatic stress disorder (PTSD). Surprisingly, relatively little is known about its phenomenology (for reviews see de Silva & Marks, 1999; Falsetti, Monnier, Davis & Resnick, 2002; Reynolds & Brewin, 1998, 1999). There have been no systematic studies as to which aspects of the trauma memory are typically re-experienced, whether people re-experience different parts of the memory at different times, whether they re-experience the whole event, or just parts of it, and how these intrusive memories are experienced (e.g. preponderance of thoughts or imagery; modalities; vividness etc.).
The 4th edition of DSM-IV (Diagnostic and statistical manual of mental disorders, American Psychiatric Association, 1994) highlighted clinical observations that intrusive memories are recurrent, distressing, and involuntarily triggered. DSM-IV furthermore states that re-experiencing can take the form of "distressing recollections of the event, including images, thoughts or perceptions" (p. 428). The DSM-IV symptom definitions are based on expert consensus.

Preliminary interview and questionnaire studies have only recently systematically asked people with PTSD to describe their intrusive memories, and have found that these mainly consisted of relatively brief sensory fragments of the traumatic experience (Mellman & Davis, 1985; van der Kolk & Fisler, 1995; Ehlers & Steil, 1995). Ehlers et al., 2002 report on interviews with four groups of individuals who had experienced various types of trauma, not all of whom met diagnostic criteria for PTSD. Intrusive memories took the form of visual images, sounds, smells, tastes or bodily sensations such as pain. Such sensations could occur in any combination. It has been suggested, and supported by preliminary data, that visual intrusions are particularly common (Ehlers & Steil, 1995; Ehlers et al., 2002; Mellman & Davis, 1985).

Interestingly, the participants in the above studies rarely described their intrusive (spontaneously triggered, unwanted) memories as thoughts, although the ambulance service staff in the study by Ehlers et al. 2002 (who had only witnessed traumatic events) reported rather more thoughts than the other groups. However, 97% of childhood sexual abuse survivors reported that their intrusive memories included visual sensations, whilst only 26% said that they included thoughts.

On the other hand, other findings suggest that intrusive thoughts are common in PTSD, and may even be more common than intrusive memories (e.g., Reynolds & Brewin, 1998, 1999). There appear to be different forms of intrusive trauma-related thoughts, many of which, in our view, do not appear to represent re-experiencing symptoms, as they do not consist of a recollection of the traumatic event itself. Examples of such non-memory intrusive thoughts include evaluative thoughts about the trauma (Reynolds & Brewin, 1998, 1999), and rumination (e.g., having thoughts like "Why did it happen to me?" "How could the event have been prevented?"). Rumination may include dwelling on how one's life has been ruined by the trauma, which is common in PTSD, and has been shown to be an important maintaining
factor (Murray, Ehlers & Mayou, 2002). Past research has not always separated intrusive memories from rumination and other intrusive thoughts that do not represent re-experiencing (e.g., Holman & Silver, 1998). Recent theoretical work, however, suggests that these different types of intrusions may represent functionally distinct phenomena (de Silva & Marks, 1999; Ehlers & Clark, 2000; Ehlers, Hackmann, & Michael, in press; Joseph, Williams, & Yule, 1997). The present paper follows this distinction, and concentrates on the characteristics of involuntarily triggered, unwanted trauma memories in PTSD.

DSM-IV (American Psychiatric Association, 1994) distinguishes between intrusive distressing recollections of the event and acting or feeling as if the traumatic event were recurring (flashbacks). In a dissociative flashback, the individual loses all awareness of present surroundings, and literally appears to relive the experience. The sensory impressions are re-experienced as if they were features of something happening right now, rather than being input from memory of the past. Despite the distinction made in DSM-IV, the lack of time perspective may also apply to other forms of re-experiencing in PTSD, in a less dramatic form, including intrusive images (criterion Bl) or distress in response to reminders (criterion B4). Patients may not lose all awareness of present surroundings, but, as several authors have observed (Brewin, Dalgleish & Joseph, 1996; Ehlers & Clark, 2000; Foa & Rothbaum, 1998), their intrusions are often accompanied by a sense of current threat and a sense of ‘nowness’. Patients often describe feeling that an intrusive image is experienced in the present, rather than as a memory from the past. The emotions (including physical reactions and motor responses) accompanying the intrusions are often said to be the same as those experienced at the time (“original” emotions) (Brewin et al., 1996; Ehlers & Clark, 2000; Foa & Rothbaum, 1998). Thus, a sense of ‘nowness’ may not be restricted to flashback experiences, but may also apply to briefer intrusive memories that do not involve complete loss of awareness of present surroundings. The vividness of the intrusive memories has also been highlighted (e.g., Brewin et al., 1996), but not closely studied.

Many theorists have commented on the wide range of triggers of involuntary re-experiencing (e.g. Brewin et al, 1996; Ehlers & Clark, 2000; Foa, Steketee & Rothbaum, 1989). Ehlers and Clark (2000) observed that many trigger stimuli are cues that do not have a strong meaningful relationship to the traumatic event, but are
cues that were temporally associated with the event, such as a pattern of light, or a tone of voice. People with PTSD are often unaware of many of these cues, so that intrusions appear to come out of the blue. There has been little systematic gathering of information about triggers.

Like the qualities of intrusive memories, their content has rarely been investigated in a systematic way. In a recent study, Ehlers et al. (2002) observed that visual intrusive memories are particularly common across all types of trauma. They pointed out that this is surprising, as one may have assumed that the most traumatic aspects of the event (and thus the most emotional) would be remembered best and would thus haunt the survivor in the form of re-experiencing. For example, one may have expected that a survivor of a stabbing would flash back to the moment when the knife entered the body and re-experience the pain and other physical sensations connected with this moment. Or one may have expected a rape survivor who was forced to perform oral sex on the perpetrator to re-experience the taste connected with this ordeal. However, interviews with trauma survivors showed that this is usually not the case (Ehlers et al., 2002). Instead, people seem to mainly re-experience visual or other sensory stimuli that signaled the onset of moments with the largest emotional impact (e.g., "Perpetrator standing at the window with the knife," "The perpetrator’s eyes staring at me" in the above examples). Ehlers et al. (2002) argued that intrusive memories can be understood as stimuli that - through temporal association with the traumatic event - acquired the status of warning signals: stimuli, that if encountered again would indicate impending danger. This would explain why intrusive memories induce a sense of serious current threat, as Ehlers and Clark (2000) suggested.

Finally, little is known about what happens to intrusive images over time. van der Kolk and van der Hart (1991) have suggested that intrusive trauma memories are relatively invulnerable to change. However, no systematic studies have looked at how many different intrusive memories patients have, and how stable their qualities (i.e. vividness, associated distress, sense of ‘nowness’) are over time. Also we have no information about how intrusive memories change with treatment. Whereas it is known that successful treatment of PTSD leads to substantial reductions in re-experiencing (e.g., van Etten & Taylor, 1998), the time course of these changes remains unclear. Intrusive memories may disappear abruptly, or may fade out gradually. If they fade rather than disappear the sense of reliving, vividness and
distress provoked may fade in unison, or some aspects may disappear abruptly or at different rates. To date this has not been studied in a prospective study.

In one retrospective study (van der Kolk and Fisler, 1995) the investigators asked participants with PTSD to note what change in their memories of the trauma they had noticed over time. The pattern that emerged was that participants noted that initially memories were recalled as vivid sensory impressions. These became even more vivid at around the time a coherent narrative of the traumatic event began to be formed, and then the imagery faded again.

The goals of the present interview and questionnaire study were:

- To systematically evaluate what aspects of their traumatic event people with PTSD re-experience, and what the qualities and content of these intrusive memories are.
- To test the warning signal hypothesis of intrusive memories, by asking raters to classify the content of intrusions systematically. Patients were also asked to indicate whether each intrusion represented something that happened before, during or after what they would describe as the worst moment of the trauma.
- To explore the question of how intrusive memories change with treatment by tracking the frequency and qualities of patients’ intrusive memories during cognitive behavioral treatment.
4.1.3. Method

4.1.3.1. Participants. Twenty-two patients (12 women, 10 men) with chronic post-traumatic stress disorder (duration 6 months or longer) who had been referred for cognitive behavioral treatment, in a treatment trial at an academic research unit, participated in the study. Diagnoses were established with the Structured Clinical Interview for DSM-IV (SCID: First, Spitzer, Gibbon, & Williams, 1995). The patients' ages ranged from 20 to 64 ($M = 39.3, SD = 10.8$). They had experienced a wide range of different traumas (e.g., assault, $n = 5$, motor vehicle accidents, $n = 8$, other accidents $n = 3$, traumatic death/accident/suicide of relative $n = 4$, of other people $n = 2$). Their mean score on the Post-traumatic Diagnostic Scale (Foa, Cashman, Jaycox, & Perry, 1997) was 27.7 ($SD = 10.0$), indicating moderate to severe PTSD symptom severity. Their mean score on the Beck Depression Inventory was 22.1 ($SD = 12.2$), indicating moderate depression (Beck & Steer, 1992). Three patients suffered from concurrent major depressive episodes. Six patients were taking psychotropic medication (SSRIs $n = 5$, benzodiazepines $n = 1$ were taking non-narcotic medication to control their pain, usually ibuprofen.), and had been on a stable dose for at least 2 months before treatment started; 5 patients
4.1.3.2. Overview of procedure. The author interviewed patients with PTSD before they started a course of cognitive behavioral treatment. The semi-structured Intrusions Interview assessed the frequency, vividness, associated distress, sense of 'nowness', and content and current meaning of each of their intrusive memories. The interviewer also noted anything the patient said had triggered each intrusion. The patient was asked to start by describing their major intrusion, i.e. the one that was troubling them most. The interviewer also asked each participant to identify the worst moment in the trauma, and classify each intrusion as something that occurred before, during or after the worst moment. After the Intrusions Interview the author wrote a description of each of the intrusions on a separate sheet of the Intrusions Questionnaire, stapled the sheets together, and made sufficient copies for use at each therapy session. If a new intrusion arose therapists were asked to do an Intrusions Interview for the new intrusion, and then track it along with the other intrusions each week, using a fresh sheet in the Intrusions Questionnaire.

Patients completed Intrusions Questionnaires each week at the start of each treatment session, rating each intrusive memory, including any new intrusions that had emerged. The Intrusions Questionnaire also incorporated ratings of frequency, vividness, associated distress and sense of 'nowness', together with space for notes about anything that had triggered the intrusions that week, and any changes they had noticed in the memories. A copy of the initial Intrusions Interview is presented in Appendix A. A copy of the Protocol is presented in Appendix B. A copy of the Intrusions Questionnaire (completed at each therapy session) is presented in Appendix C.

4.1.3.3. Intrusions interview. All patients were interviewed individually before they started treatment with cognitive therapy, and after being diagnosed with the SCID. The Intrusions Interview consisted of a series of questions asked in a fixed order, and lasted approximately 30 minutes. The interviewer first asked "You have told us that memories of the ________ (trauma) pop into your mind when you do not want them to. Could you tell me what these memories are like?" The content of the memories was written down verbatim. If patients reported more than one intrusive memory, the interviewer first asked them to choose and describe the major intrusive memory, i.e. the one that was troubling them most. The interviewer then asked
“Could you tell me a bit more about how you experience this memory? What is it like?” and then prompted “Is it more like a thought (please describe)? like a feeling (please describe?) or like a sensory experience?” If patients chose sensory experience, the sensory modalities were then explored. The frequency with which the intrusive memory was reported to have occurred in the previous week was noted. Also patients rated its average vividness for that week, the distress associated with it, and the extent to which it seemed to be happening now instead of being something from the past on 0 - 100 scales (0 = not at all, and 100 = very much). Patients were asked about their awareness of anything that triggered the memory, and notes were made of triggers. They were asked what meaning the intrusion had for them when it popped into their mind that week.

Patients were also asked to describe their worst moment during the trauma to the interviewer, and were asked to classify whether the intrusion was about something that happened before, during or after the worst moment.

Patients were then interviewed in the same way for each other intrusive memory that had been coming to mind when they did not want it during the previous week.

4.1.3.4. Classification of the content of the intrusive memories. The interviewer then classified the intrusion using one of six pre-determined categories (see Appendix A). Once the data was collected the results were inspected, and two other raters independently classified the recorded content of each memory using a new, elaborated classification system, based on the initial observations of Ehlers et al (2002), and on further observations of the therapists when treating PTSD patients, including some of the patients in this study. The author and the independent raters were therapists in this study, and all three took part in group supervision sessions, out of which discussions the new classification system arose.

At the end of the study, each of the two independent raters used the following categories to classify each of the intrusions, as described in the transcripts: -

1. Stimulus that was present shortly before the traumatic event began and signaled its onset (e.g., “Headlights coming towards me” before accident; “Perpetrator standing by my bed with a knife” before stabbing);

2. Stimulus that occurred in the course of the event, and signaled a moment
when the meaning of the event became more traumatic. Examples:- “Paramedics touching my shoulder” - which preceded them asking whether the patient was alright, a moment when the patient suddenly felt pain and realized she was injured; “Seeing curtains burning” - this made the patient realize that her living room was on fire, which led to the horrific thought that her daughter might be there and might be burning alive);

3. Moment before the trauma when everything still seemed OK (e.g., images of a pleasant day before accident happened);

4. Stimulus that represented a moment when the meaning of the event became better in some respect (e.g., seeing daughter alive after patient had assumed she was dead);

5. Moment when patient later wished he/she had done something differently (e.g., interaction with another person after the event - patient regretted later that she had not been friendlier at the time);

6. Intrusion of elements from previous traumatic event when experiencing the present trauma (e.g., sound of previous accident in which mother was killed)

7. Replay of a dissociative experience (e.g., seeing oneself from outside one’s body).

Categories 1 and 2 both represent “warning signals”, and can be considered two examples of the same concept. They were distinguished for the purposes of the study as the onset of the trauma can be determined more unambiguously than later time points.

A minority of four intrusive memories (8%) were prolonged, i.e., contained a series of different sensory elements that occurred in succession (e.g., a stimulus signaling a moment when the meaning became more traumatic, and a memory from a previous traumatic event) and thus had to be classified in more than one category.

The classification originally contained a category for “worst moment of the trauma.” After reviewing the intrusions reported by the patients as representing the worst moment, they did not appear to differ in content from the other intrusions, and were thus also coded using the above categories. However, results for intrusions from the worst moments of the trauma and other intrusions are reported separately.

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The kappa for inter-rater reliability was .90. A consensus rating was agreed for the few cases of discrepancy between raters (all of these were between categories 1 and 2)

4.1.3.5. Intrusions Questionnaire. Before each treatment session, patients completed a short questionnaire about each of their intrusive memories that had been identified in the Intrusions Interview. The Intrusions Questionnaire asked patients to indicate how often the intrusive memory had occurred in the previous week, and to rate how distressing and vivid it had been, and the extent to which it seemed to be happening now instead of being something from the past, each on a scale from 0 (not at all) to 100 (very much). The retest-reliability of the questionnaire (1-week interval) in another sample of 44 PTSD patients (Speckens, Ehlers, Hackmann, & Clark, 2004) ranged between r = .61 and r = .72 for the 4 rating scales, respectively. The correlations between the corresponding scales on the Intrusions Interview and the Intrusions Questionnaire given in the first treatment session were: frequency r = .94, distress r = .74, vividness r = .70, ‘nowness’ r = .84, for the present study.

Patients were also asked whether any new intrusive memories had occurred in the previous week, and if so each new intrusion was rated in this and all subsequent treatment sessions. Effect sizes for changes in intrusion characteristics are based on Cohen’s d statistic (Cohen, 1988), following the formula: 

$$d = \frac{M_{\text{initial}} - M_{\text{post}}}{SD_{\text{pooled}}}$$

with

$$SD_{\text{pooled}} = \sqrt{\left(\frac{SD_{\text{initial}}^2 + SD_{\text{post}}^2}{2}\right)}$$

4.1.3.6. Cognitive behavioral treatment. After the Intrusions Interview, patients received a course of cognitive behavioral treatment (cognitive therapy for PTSD, see Ehlers & Clark, 2000, and Ehlers et al., 2003, for a description of the treatment approach). Patients were usually offered up to twelve one and a half hour weekly sessions, followed by three follow-up sessions. The first treatment session involves discussion of the patient’s symptoms and goals, a brief description of the traumatic event, assessment of factors maintaining the disorder and treatment rationale. In the following sessions, a combination of cognitive therapy techniques and imaginal reliving (Foa & Rothbaum, 1998) are used to elaborate the trauma memory. Cognitive therapy methods such as Socratic questioning and behavioural experiments are used to change the problematic appraisals, including those of trauma
sequelae (e.g., initial PTSD symptoms, responses of other people, or physical consequences of the trauma). Imaginal reliving and the writing of a narrative are used to reconstruct the traumatic event and to identify its worst moments ("hot spots"). For each of these moments, information that updates its meaning is identified and incorporated into the memory via verbal or imagery techniques. The updating information represents either information that became available to the patient at a later point, or new conclusions that are the result of cognitive restructuring. An example of the incorporation of information acquired later during the trauma or its aftermath would be linking the appraisal "I thought I'd lost my legs" with the final outcome "I now know that I could actually move my toes and realized shortly afterwards that I was in one piece and would be able to walk"). An example of updating incorporating a new conclusion that was the result of cognitive restructuring would be the replacement of "I could have prevented the accident if I had done x" with the conclusion that "If I had done x, I would have hit oncoming traffic and thus would have had an even worse accident").

Imaginal reliving was usually conducted from the second treatment session onwards, but in a few cases started during the first or third session. For this minority of patients, data from the corresponding sessions were used for data analysis.

Patients received between 6 and 20 sessions of therapy (M = 11.5, SD = 4.3). The paper will focus on the first five sessions as these were available for all patients, and as the number of patients who still experienced intrusions from session 6 onwards was too small (n = 9 people, with a total of 26 reported intrusions) for meaningful comparisons. This figure continued to shrink. Figure 1 shows the sharp drop in the number of intrusions rated as present at all during each week of treatment. The duration of each of the treatment sessions was 90 minutes.
Figure 1: Total number of intrusions rated as present during each week of therapy.

N.b. Reliving usually started in week 2.
4.1.4. Results: Intrusions Interview

4.1.4.1. Number and modalities of intrusions. Patients initially reported between 1 and 4 different intrusive memories (M = 2.2, SD = 1.0), providing a total of 47 intrusive memories. Table 1 shows the results of the Intrusion Interview. With the exception of one intrusion that the patient described as a mixture of thoughts and feelings, all intrusions (n = 46, 98%) were described as a mainly sensory experience. The vast majority of intrusive memories included visual and/or bodily sensations. Auditory sensations were experienced during about half of the intrusions, and taste and smell sensations were least common.

4.1.4.2. Classification of intrusions. Only 17% of the intrusive memories were about the separately identified worst moment of the trauma. Most commonly the intrusions that the patients had described as their major intrusions were from before the worst moment of traumatic event. The major intrusions were significantly more likely to represent something that occurred before the worst moment than the worst moment itself, \( \chi^2 (1, n = 19) = 6.37, p < .05 \), or than something that happened afterwards \( \chi^2 (1, n = 18) = 8.00, p < .01 \).

Table 1 lists the content for those intrusive memories that did not represent the worst moment of the trauma (n = 18/22, 82% of the major intrusions, and n = 39/47, 83% of all intrusions), and the content of those that did represent the worst moment (n = 4, 18%, and n = 8, 17%).
<table>
<thead>
<tr>
<th>Major Intrusion</th>
<th>All Intrusions</th>
</tr>
</thead>
<tbody>
<tr>
<td>(n = 22)</td>
<td>(n = 47)</td>
</tr>
</tbody>
</table>

### Sensory qualities

- **Visual**: 86% (n = 22), 79% (n = 47)
- **Auditory**: 55% (n = 22), 57% (n = 47)
- **Taste/smell**: 23% (n = 22), 15% (n = 47)
- **Bodily sensations**: 68% (n = 22), 66% (n = 47)

**Number of sensory qualities, M (SD)**: 2.3 (0.8) (n = 22), 2.2 (0.8) (n = 47)

### Temporal relationship of intrusive memory to worst moment of trauma identified by patient

- **Before**: 68% (n = 22), 43% (n = 47)
- **During**: 18% (n = 22), 17% (n = 47)
- **After**: 14% (n = 22), 40% (n = 47)

### Content of intrusions that did not represent worst moment

- **Stimulus signalling trauma onset (1)**: 61% (n = 18), 33% (n = 39)
- **Stimulus signalling moment when meaning became more traumatic (2)**: 28% (n = 18), 36% (n = 39)
- **Prior moment when everything was OK (3)**: 11% (n = 18), 8% (n = 39)
- **Meaning changed for better (4)**: 0% (n = 18), 8% (n = 39)
- **Action regretted later (5)**: 6% (n = 18), 13% (n = 39)
- **Moments from another trauma (6)**: 6% (n = 18), 8% (n = 39)
- **Replay of dissociative experience (7)**: 6% (n = 18), 3% (n = 39)
Content of intrusions that represented the worst moment ¹

| Stimulus signalling trauma onset (1) | 25  | 25 |
| Stimulus signalling moment when meaning became more traumatic (2) | 75  | 63 |
| Element from another trauma (6) | 25  | 13 |
| Replay of a dissociative experience (7) | 0   | 13 |

¹ A minority of intrusive memories were prolonged and thus had to be classified in more than one category.

The raters classified the majority of patients’ *major intrusive memories* (i.e. the ones that troubled them most) as sets of stimuli that preceded the trauma (category 1), followed by sets of stimuli that signaled a moment when the meaning of the event became more traumatic (category 2).

When *all* intrusions were considered, the two most common types of intrusion were about a stimulus situation signaling a moment when the meaning of the event became more traumatic (category 2), and a stimulus situation signaling the onset of the trauma (category 1).

A minority of intrusions incorporated memories of moments when everything was still OK (category 3), before any intimations of the trauma. All three patients who had this type of intrusion reported that it occurred in conjunction with other intrusions of stimuli that immediately preceded the trauma (category 1) (i.e. they had both types of intrusion: an intrusion of a moment when everything was alright, and another that signaled that it was most definitely not). The small number (*n* = 4) of patients who had intrusive memories reflecting moments when things changed for the better (category 4) also had intrusive memories of contrasting moments when the meaning became more traumatic (category 2, *n* = 3) or of stimuli signaling the onset of the trauma (*n* = 1). For example, a patient who had an intrusive memory of looking down at her body after a road traffic accident and being relieved to see no signs of...
injury had another intrusive memory of a paramedic touching her shoulder, shortly after which she experienced great pain and realized that she was badly hurt after all.

Interestingly, a small minority of intrusions contained elements of memories from previous traumas (category 6), which appeared linked in sensations and meaning. For example, one patient reported that the screaming he heard during his car crash triggered memories of the death of his mother. The corresponding intrusion contained both the screaming from the crash and an image of his dying mother.

A small proportion of the intrusions (6%, n = 3/47) contained elements that had not actually occurred during the event, but appeared to be an image of what could have happened. For example, a patient had an intrusion of a man landing on her hospital bed. In the intrusion, she also heard the man laughing, although he had not laughed at the time. When the content of the intrusions representing the worst moments was considered (Table 1), a similar pattern emerged. What was re-experienced was most commonly a stimulus that signaled the onset of the trauma or a moment when the meaning of the situation became more traumatic (categories 1 or 2). For example, a patient re-experienced a particular look on the face of his assailant. When he had seen this expression during the assault, he had realized that nobody was going to help him and thought he would never see his wife again. Another patient re-experienced the bump he had felt when driving his lorry. After he had felt the bump, he realized that a man he had seen shortly before had jumped in front of his lorry, and that he had killed him.

4.1.4.3. Triggers for intrusions. Patients noted a large number of situations that automatically evoked the intrusive memories. Different situational cues typically evoked different intrusive memories. For example, when trapped in heavy traffic a patient would hear the “explosion” that she heard at the time of the crash. On the other hand, being touched on the shoulder would evoke an intrusive memory of the paramedic touching her shoulder in the ambulance. For another patient, a letter on the hall table triggered the intrusive memory of his father’s suicide note, whilst a reclining figure on the grass in a park would trigger an intrusive memory of his father’s dead body stretched out in the garden after he had shot himself.
4.1.5. Results: Intrusions Questionnaire

4.1.5.1. Changes in characteristics of intrusions over time. Figure 2 shows the changes in the intrusion characteristics over time for the major intrusive memory. Figure 3 shows the similar pattern when the average ratings for all intrusions are considered. Results are presented for the 19 patients with complete data. Results are plotted for the week preceding the Intrusions Interview, and the weeks preceding the first treatment session, the first reliving session, and the 3 subsequent sessions, respectively. The frequency of intrusions was multiplied by 10 so that it could be plotted on the same scale as the 0 - 100 rating scales for distress, vividness and 'nowness'. Figures 1 and 2 present group means.

Figure 2.

Changes with Therapy:
Main Intrusion

![Graph showing changes with therapy for main intrusion characteristics over time.](image)
Scores for individual patients also indicated gradual changes rather than abrupt discontinuation of the intrusive memories (see next section of portfolio for two case studies, and graphs for each individual of each separate intrusion over all sessions of treatment and follow-up).

Since the pattern for the major intrusions appeared similar to the pattern for all intrusions we chose only to examine the significance of the changes in the major intrusions between different time points. This could also be done for all intrusions, but before doing this is would be necessary to find the average ratings for each person, and enter these. The means of all the ratings could not be used, as each person's intrusions are not truly independent of each other.

There was no change in the frequency of the major intrusive memories between the Intrusions Interview and the first reliving session, \( t(18) = 1.41, ns, d = -0.19 \). After the first reliving session, intrusion frequency decreased; reliving session versus session 3, \( t(18) = 1.94, p < .07, d = 0.46 \); versus session 4, \( t(18) = 3.14, p < .01, d = 1.01 \); versus session 5, \( t(18) = 4.00, p < .01, d = 1.21 \).
The same pattern was found for the distress caused by the major intrusion; interview versus reliving session, $t(17) < 1, d = -0.07$; reliving session versus session 3, $t(17) = 4.39, p < .001, d = 0.67$; versus session 4 $t(17) = 4.27, p < .001, d = 0.87$; versus session 5, $t(17) = 5.68, p < .001, d = 1.37$.

The ratings for vividness also showed the same pattern of results; interview versus reliving session, $t(18) < 1, d = -0.02$; reliving session versus session 3, $t(18) = 2.46, p < .05, d = 0.49$; versus session 4, $t(18) = 4.29, p < .001, d = 0.87$; versus session 5, $t(18) = 6.42, p < .001, d = 1.49$.

'Nowness' ratings of how much the major intrusive memories appeared to happen in the “here and now” already declined between the Intrusion Interview and the first reliving session, $t(18) = 2.43, p < .05, d = 0.48$. After reliving, they showed further decreases by session 5, $t(18) = 3.55, p < .005, d = 0.83$. There was a trend for the degree of reduction in ‘nowness’ between the first reliving session and sessions 4 and 5 to be smaller than both the reduction in distress, and the reduction in vividness. The results were as follows:

i) degree of reduction in ‘nowness’ ratings versus distress ratings between reliving session and session 4, $t(17) = 2.05, p < .06$; between reliving and session 5 $t(17) = 1.93, p = .07$;  

ii) degree of reduction in ‘nowness’ versus vividness ratings between reliving session and session 4, $t(18) = 1.89, p < .08$; between reliving and session 5, $t(18) = 1.88, p < .08$.

The differences in ‘nowness’ ratings were significant when the average ratings for all intrusions reported by each patient were considered.

Only three patients noted any fresh intrusions in the course of treatment, and each of these lasted only for a short while before disappearing again. For example, a patient whose father had shot himself had some intrusive memories of his father’s shattered head whilst looking at photos of the father in therapy. He had avoided looking at photos since his father’s suicide, and had not been able to remember what the father’s head had looked like when he found the body.

An interesting observation was made concerning the final disappearance of the intrusions. For most individuals who had more than one intrusion all the intrusions appeared to disappear at more or less the same time. Seven patients had
only one intrusion. Of the remaining fifteen, seven cases lost their intrusions at the same time point, and another five did so by the session following the loss of the first intrusion. A further two lost both intrusions within two weeks. Only one patient showed a widely spaced loss of intrusions.

4.1.6. Discussion

4.1.6.1. What is re-experienced?

The present paper investigated what aspects of traumatic events are re-experienced and whether people with PTSD re-experience different parts of the event at different times. A notable finding was that patients reported a small number of involuntary intrusive memories of their traumatic event that occurred in a very repetitive way.

The repetitive nature of intrusive memories is a remarkable aspect of their phenomenology that may give important clues about their etiology and treatment. Ehlers and Clark (2000) observed that trauma survivors with PTSD re-experience their original emotions and sensory impressions even if they later (i.e., at another time during the event or afterwards) acquired new information that contradicted the original impression, or if they know that these impressions did not turn out to be true. A striking example of the lack of updating of the intrusive memories in the present sample was the lady who had frequent intrusions of seeing the curtains burning which had led her to believe at the time that her children were burning alive. At other moments during the day, she had intrusions of seeing the dead bodies of her children in the mortuary that did not show any signs of burns (the children had been in a different room and had been overcome by fumes). Before treatment, the patient had never connected these two parts of the memory for the trauma, and the intrusions had persisted unchanged. Other patients also had contrasting intrusions of moments when the meaning of the event became better and moments when the meaning became more traumatic; and these contrasting moments appeared to be relatively unconnected in memory. Thus it appears that the repetitive nature of intrusive memories may be an indication of the failure to connect these moments with new information that could crucially affect their meaning.

Although patients experienced the same intrusive memories over and over again, this did not always mean that these memories were an exact trace of what had
happened, as a few of them included elements from previous traumas or images representing things that people feared might happen or have happened, but did not.

4.1.6.2. Qualities of intrusive memories. How are the repetitive intrusive memories experienced? In line with previous observations, the involuntary intrusive memories described by the present sample appeared to be relatively short sensory “snapshots” of the traumatic event (Ehlers & Steil, 1995; Mellman & Davis, 1985; van der Kolk & Fisler, 1995). The intrusions had high perceptual content, and most patients experienced them in more than one modality. Visual intrusions were most prominent, in line with Ehlers and Steil (1995) and Ehlers et al. (2002), The high frequency of visual sensations was closely followed by bodily sensations. Bodily sensations included both manifestations of autonomic arousal and other proprioceptive material, which more clearly was part of the memory. For example, many patients experienced pain or feeling physically trapped whilst having an intrusive memory. Auditory sensations were moderately common, and smells and tastes were least common.

Before treatment, intrusive memories were usually experienced with a strong sense that this was something that was happening now, rather than something from the past. This is in line with suggestions (Brewin et al., 1996; Ehlers & Clark, 2000; Foa & Rothbaum, 1998) that a sense of ‘nowness’ appears to be a general characteristic of intrusive trauma memories, including those that would meet the B1-criterion of DSM-IV (American Psychiatric Association, 1994), and does not appear to be restricted to flashbacks. The repetitive nature of the intrusions and the lack of integration of new information that updates the original impressions about what was going to happen are consistent with this subjective sense of “nowness.” These characteristics would explain the strong emotional reaction to intrusive memories in PTSD, and the “sense of serious current threat” produced by the intrusions (Ehlers & Clark, 2000). Consistent with the present data, Michael, Ehlers, Halligan and Clark (submitted) found that the lack of time perspective of intrusive memories and the lack of context (operationalized by the degree to which they were experienced as isolated and disconnected from what happened before and afterwards) predicted the chronicity of PTSD symptoms in a prospective longitudinal study of assault survivors.
4.1.6.3. Test of warning signal hypothesis. The content of the intrusive memories was systematically classified. On the basis of research showing that central elements of highly emotional experiences are remembered best (Christianson, 1992), one may have expected that the central, most traumatic, aspects of the event would be re-experienced. However, only a minority of 17% concerned what the patient identified as the worst moment of the event. Instead, most intrusive memories represented stimuli that during the course of events predicted the onset of the trauma, or signaled the onset of moments when the meaning became more traumatic. This is consistent with Ehlers et al.'s (2002) interpretation that intrusive memories of trauma may be understood as re-experiencing stimuli that indicated impending danger at the time of the event, and have thus become warning signals indicating future threat to the individual. Intrusive memories would thus have functional significance in that they may help prepare a traumatized person for rapid action to avoid future danger if similar stimuli are encountered in the future.

The warning signal hypothesis can most clearly be evaluated for those stimuli that preceded the onset of the trauma (category 1) as the time course of events can be unambiguously established (e.g., “Headlights coming towards me” predicting a head-on car crash). In line with the hypothesis, half of the patients' major intrusions were stimuli that preceded the traumatic event. Should stimuli that signaled a moment when the meaning of the event became more traumatic also be understood as warning signals? As these stimuli occurred during the course of the traumatic event, it is more difficult to establish temporal relationships unambiguously. However, the interviews indicated that these intrusions, even if they reflected the worst moments of the trauma, appeared to comprise re-experiencing of sensory stimuli that signaled the onset of a moment when the meaning became more traumatic, rather than a stimulus that occurred later on during that moment. For example, the patient who re-experienced the touch on the shoulder subsequently noticed her pain and realized that she was severely injured, consistent with a warning signal interpretation. However, further systematic evaluations of this type of intrusion are necessary. For example, it would be desirable to independently assess all the moments when the meaning of the event changed, and relate these to the intrusive memories reported by the patient.

Ehlers et al.'s (2002) observed that triggers of intrusive memories often appear to be stimuli that bear physical resemblance to stimuli that immediately
preceded the "warning signal" that is later re-experienced, or to the "warning signal" itself (see also Charney et al., 1993; Foa, Steketee & Rothbaum, 1989; Foa & Rothbaum, 1998; Keane et al., 1985, Kilpatrick & Veronen, 1983). The present study did not contain a direct test of this hypothesis, although the triggers reported by patients appeared to be associated with the content of the respective intrusions, in that patients described different matching triggers for different intrusive memories.

4.1.6.4. Changes with treatment. We tracked the characteristics of intrusive memories during cognitive behavioral therapy, and found that ratings of frequency, distress, 'nowness' and vividness declined gradually. Thus, intrusions appeared to gradually fade away rather than cease abruptly. This applied to individual patients, as well as to the group mean (see Case Studies). Within this there were variations, as events such as anniversaries of the trauma or court cases could trigger more intrusions for some sessions. Within individuals different intrusive memories sometimes disappeared at different times, depending on the focus of the treatment. However, in many cases the intrusions faded in synchrony with each other, which raises interesting theoretical questions, as to why this should be so. Patients sometimes reported that some of the sensory qualities of the intrusions were lost before the intrusion disappeared completely. For example, a patient who had intrusions of strong blue and yellow colors together with the sound of screeching metal, reported that the colors faded first. Several others reported that body sensations, sounds and smells faded away, leaving only a shadowy picture.

Talking about intrusions in the Intrusions Interview alone did not bring about a change the frequency and vividness of the intrusions and distress associated with them. One might have expected that imaginal reliving in session 2 would lead to a transient increase in intrusions, but this was not usually the case. The finding is in line with recent data published by Foa, Zoellner, Feeney, Hembree, and Alvarez-Cobrad (2002) showing that imaginal exposure rarely leads to significant symptom exacerbation. However, some individuals reported a slight temporary increase in intrusions for a few days after the first reliving session. It may therefore be useful to warn patients that this could occur, but will usually be followed by a fairly swift decrease in intrusions.
Interestingly, the extent to which the memories appeared to happen in the "here and now" followed a somewhat different pattern of change. Talking about the intrusions in the Intrusions Interview led in many cases to decreases in 'nowness', possibly because talking about the experience in a new context may have provided a sense of perspective, and helped install the idea that this was something that happened in a different time and place. Further sessions that included imaginal reliving, cognitive interventions and the incorporation of updating information into the memory led over all to further decreases in 'nowness' by Session 5, but the decrease appeared to be somewhat slower than for distress and vividness. The latter result should be interpreted with caution, as it was only significant when the average ratings for all intrusions reported by a patient were analyzed, rather than the ratings for the major intrusion. It is conceivable that the trend for a slower decrease in 'nowness' observed in this study was related to the instruction to do the imaginal reliving of the traumatic event in the present tense.

4.1.6.5. Intrusive trauma memories versus intrusive thoughts about the trauma. It was the goal of the present study to describe the characteristics of unwanted intrusive trauma memories in PTSD. We therefore did not assess any intrusions that were not described as memories of the trauma itself, such as rumination or intrusive evaluative thoughts about the trauma that do not involve re-experiencing. This has to be taken into account when interpreting the results. As Reynolds and Brewin (1998, 1999) have shown, such intrusive thoughts about the trauma may actually be more common than intrusive memories of the trauma. A systematic comparison of the characteristics of these different types of intrusions in PTSD would be interesting. As their distinction has only recently been proposed in the literature (de Silva & Marks, 1999; Ehlers & Clark, 2000; Ehlers et al., 2002; Joseph et al., 1996), comparisons are as yet lacking.

4.1.6.6. Limitations and suggestions for further research. The present study had several limitations. A relatively small sample of patients was interviewed so that it remains to be tested whether the results will be replicated in other samples. Research with larger samples is recommended, to see which of the findings prove to be robust. It also remains unclear whether the categories of intrusions experienced by
patients in this sample will be sufficient to classify the full range of involuntary trauma memories. The traumatic events in the present sample were of relatively short duration, and it is possible that people who experienced more prolonged or repeated traumatic events have additional or different types of intrusive memories, for example, intrusions that combine elements or moments from a range of different traumas. In this context, it is of interest to note that some patients in the present sample reported that their intrusions contained elements from both the present trauma and a previous trauma. Furthermore, it would be desirable in future studies to systematically assess all the moments when the meaning of the event became more traumatic, and determine whether they are meaningfully linked to the patient’s intrusive memories. Such studies would build on that of Holmes, Grey and Young (in press), who asked people to record their intrusive memories before treatment, and later to identify the worst moments or ‘hot-spots’ during reliving. Intrusions and hotspots were shown to correspond closely.

The present study did not assess the relative duration of the events during the trauma, and it would be desirable to test whether the proportion with which different aspects of the trauma occur as intrusive memories is not just a function of their duration. It would be desirable in future studies to distinguish between bodily sensations that represent re-experiencing of sensations from the trauma, and those that represent a stress response to having a distressing memory.

A further line of enquiry would be to study changes in the qualities of the memories in a variety of different groups, and in different ways. In this treatment study patients were asked to do reliving and in-vivo exposure, plus cognitive restructuring. They also completed retrospective diaries at the end of each week. Different patterns might be obtained in samples having no treatment, different types of treatment, or treatments delivered at different rates (e.g., intensive treatment samples receiving daily treatment sessions). Daily diaries might also provide more accurate records than weekly diaries. Few studies have tracked what happens to untreated trauma memories as time goes by. One study looked at a group of people with PTSD, and asked them to describe retrospectively what had happened to their traumatic memories over time. These subjects described their original intrusions as comprising what the authors describe as “mental imprints of sensory and affective elements of traumatic experience” (van der Kolk and Fisler, 1995). Over time
subjects reported an initial increase in the vividness of these intrusive memories, as a narrative began to emerge, which van der Kolk and Fisler suggest can properly be described as "explicit memory". After this, the sensory intrusive memories began to fade again. Further studies of such phenomenology, in more detail, and prospectively, would be of great interest. It would also be possible to investigate the differential effects of various ways of delivering treatment, versus no treatment at all, on a broader range of re-experiencing symptoms, including nightmares as well as daytime intrusions.
4.2. Two Case Studies, of Individuals Who Took Part in the Group Study

In this section two of the cases in this study are examined in detail, to see whether some of the observations made in the group study are echoed in the individual cases. Biographical details and names have been altered to protect confidentiality. Points discussed in the group study are highlighted in bold, and are discussed in the conclusion.

4.2.1. Case study 1: Clive

Clive was referred at the age of 45, suffering from PTSD. Twenty years before this his father had committed suicide. Clive’s PTSD symptoms erupted several years before he was referred, following trouble at work that led to his being made redundant. The letter bearing the bad news about his job was in an identical white envelope to the one containing his father’s suicide note so many years before. This brought back memories of the tragedy, and many other symptoms of delayed onset PTSD.

4.2.1.1. Description of the trauma. Clive had been abroad traveling, and had returned to discover that his parents had separated, and his father was very depressed. Clive stayed with him, and tried to reconcile his parents, urging his mother to return home. Early one morning he awoke to the sound of a gunshot, and assumed his father was shooting rabbits. In fact he later discovered he had shot himself. Clive woke again several hours later, and went down stairs, where he found a letter from his father, in a white envelope. He opened the letter, and was shocked to find a suicide note. Assuming that his father had taken an overdose he ran around frantically, seeking for him, and hoping to be in time to save him. He failed in his attempt to find him, and returned to the letter, only to notice that another note had fallen to the floor. Reading this he found directions to where he would find his father’s body. Running again to the side of the house he saw his father’s legs sticking out, and rushed towards him. When he saw the whole body he realized he was too late. He then phoned for the police, ambulance service and his mother, and dealt with everything in
a mechanical way. He shut his feelings down, and started a new job in another city. It took many years for his feelings to catch up with him, when he opened the second letter bearing bad news.

4.2.1.2. The recurrent intrusions (in Clive's own words), as described in the Intrusions Interview.

1. Seeing a white envelope with my name on it, in my father's writing. I can see the position on the table, and the size of it -- a standard deal envelope.
2. Seeing myself (from the outside) running round the house, looking for him - frantic.
3. He is lying on his back - legs apart and arms apart- I can't remember the details of the gun, the eyes, the arms etc.
4. Seeing him from a distance - the legs and feet.

A fifth intrusion appeared between sessions two and three. This seemed to be a longer version of intrusion 2. It occurred recurrently until session 5, following which it disappeared.

5. I am watching the house, and seeing myself coming from behind the house on the right-hand side, onto the drive, running, coming round to the front of the house, raggedy movements, going to the other end of the house, to the lawn, running back again, obviously in a distressed state.

4.2.1.3. Meanings of intrusions, reported in intrusions interview.

The intrusions had different meanings from each other when they occurred in the present: -

1. The letter intrusion was 'a trigger for that day's awful event- disbelief that it is happening'.
2. The frantic running meant 'helplessness and panic- I am out of control, don't know what I am doing'.
3. Seeing him lying on his back meant 'anger - why did it happen to me? Why involve me?'
4. Seeing him from a distance meant 'impending worst situation'
5. The fifth (new but relatively transient) intrusion meant 'this person (i.e. me) is
in deep trouble, but it is not possible to understand why all this is happening'.

N.B: Whilst intrusions 1, 3 and 4 contained material reflecting what he had directly experienced intrusions 2 and 5 involved seeing himself from the outside, which had not happened at the time.

4.2.1.4. Intrusions as warning signals. Clive’s first intrusion constituted a warning signal: the white envelope with his father’s writing on it was described by Clive as “a trigger for the day’s awful event”. It was the first sign that anything was wrong. Similarly intrusions 3 and 4 signaled changes in meaning, and Clive described seeing his father’s body from a distance as conveying the “impending worst situation”. However, intrusion 3 (seeing his father lying on his back) also mapped onto the worst moment. The other intrusions were of events that had occurred before the worst moment.

4.2.1.5. Graphs of the intrusions. Graphs are presented for each of Clive’s intrusions, showing frequency, distress, vividness and ‘nowness’ (figures 4 – 8).

In the second set of graphs (figures 9 – 12) each characteristic is portrayed separately for all five intrusions over time.

4.2.1.6. Observations from the graphs. The pattern observed was rise in the frequency of intrusions and their qualities (except nowness) until reliving began, then a fairly steady decline in everything, until all five intrusions disappeared completely by session 6 or 7, and did not reappear. There is a remarkable synchrony between the intrusions in terms of the weekly ratings of frequency, vividness, nowness and distress.
Figure 4.

Clive: Intrusion No. 1

Figure 5.

Clive: Intrusion No. 2
Figure 6.

**Clive: Intrusion No. 3**

![Graph showing frequency, vividness, distress, and nowness over weeks.]

Figure 7.

**Clive: Intrusion No. 4**

![Graph showing frequency, vividness, distress, and nowness over weeks.]

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Figure 8.

![Graph](image)

Clive: Intrusion No. 5

<table>
<thead>
<tr>
<th>Figure</th>
<th>Intrusion 1</th>
<th>Intrusion 2</th>
<th>Intrusion 3</th>
<th>Intrusion 4</th>
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<tr>
<td>Nowness</td>
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<td>Distress</td>
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<td>Vividness</td>
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<tr>
<td>Frequency</td>
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Graphs of frequency and other characteristics of intrusions

Figure 9.

![Graph](image)

Clive: Frequency of Intrusions

- Intrusion 1
- Intrusion 2
- Intrusion 3
- Intrusion 4
Figure 10.

**Clive: Vividness of Intrusions**

Figure 11.

**Clive: Nowness of Intrusions**
Figure 12.

Clive: Distress from Intrusions

- Intrusion 1
- Intrusion 2
- Intrusion 3
- Intrusion 4

Frequency x 10

Week No.
4.2.1.7. Sensory content. Intrusions 1-5 all contained visual material and bodily sensations. Whilst the visual contents differed in each recurrent intrusion, intrusions 1-4 all included the same bodily sensations of a panicky feeling in the stomach.

In the fifth intrusion the bodily sensations were different: he sensed himself standing quite still on the road, watching himself run around.

4.2.1.8. Triggers for the intrusions, reported by Clive at the Intrusions Interview.

There were different triggers for each intrusion, and they incorporated sensory features reminiscent of the original traumatic scenes.

1. Post triggered the intrusion of the letter.
2. Certain films with desperate situations in them triggered the intrusion of the frantic running
3. Anything or anybody connected with the past, such as mother or uncle, triggered the intrusion of father lying on his back.
4. Someone lying down, dressed (like someone in a park) triggered the intrusion of seeing father from a distance, the legs and the feet.

And thinking about his father’s house triggered the (more transient) intrusion of seeing himself running with raggedy movements around the house.

4.2.1.9. Changes noted on the weekly Intrusions Questionnaires.

Changes in triggers

1. The post sometimes triggered intrusions of the original letter, until week 7, after which it did not. After this Clive was able to tackle the post without experiencing fear.
2. Seeing dressed men lying down could trigger intrusions 3 and 4, i.e. of his father’s prone body. However, this was not reported after session 3.
3. After session 3 Clive began to make plans to visit his father’s house for the first time since the tragedy. Subsequently memories of the house sometimes triggered all the intrusions except the letter. That is, they could trigger intrusions of him running, and of his father’s body.
Changes in the memories

Session 3

1. Clive noted that something had changed about intrusion 1. He was more aware of ‘the pain and terror I felt when I found the separate note telling me where to find him’. In the same session he noted that he had remembered something new: ‘the intense panic in reading the note where his body would be found; feeling that I was probably too late after all’.

2. There were also changes in the memory of intrusion 2. Clive noted that he was ‘remembering I was desperate to find him before he died. He had also remembered ‘I thought he had taken pills and had not made the connection with the shotgun noise earlier. If I acted quickly enough, I could still stop him dying. But of course I know now that he was already dead’.

3. There were more changes in intrusion 4. Clive felt more in touch with ‘the pain this picture caused’, and remembered ‘the realization that at this point I had failed to find him alive- it was too late to stop him dying’.

Session 5

1. Clive noted that each of the intrusions was fading, or not so strong, except for intrusion 3, of his father’s body close up. Of this he wrote that he was ‘trying to extend the image by seeing the body put in a bag and then into an ambulance and going away’.

2. He also noted that that whilst intrusion 5 was less vivid it now included different sensory material in all the modalities: ‘hearing the birds singing, feeling the early morning chill, smelling the fresh, damp, morning country air, feeling everything so calm and still (no wind); seeing the bright sun reflecting off the trees etc. This seemed to be incorporating material from a more recent memory: he had visited his father’s house that week, for the first time for many years, and looked at it from the road. He had felt very calm at the time, observing all the things that had changed in the intervening years. Importantly, he had been irrationally scared that he would still see his father’s body lying by the dustbin - but of course he saw nothing of the sort.
Session 6

1. By session 6 he noted by each intrusion that they were ‘fading, joining back up with the other images’ Intrusion 2 and intrusion 5 (both to do with running round the house) had not occurred, and he wrote of intrusion 2 ‘It has faded virtually completely’.

2. He wrote of the intrusion of his father’s body (intrusion 3) ‘It’s joined up with the other images, and going in an ambulance’.

Session 7 - end of treatment.

By session 7 all the intrusions were gone, and they did not return during treatment. However, during a session near the end of treatment I encouraged Clive to look at his photos of his father, which he had been avoiding. He did this, and reported that he could not see them properly; something seemed to be ‘in the way’. He was asked to repeat this the following week, and then found that quite suddenly he retrieved memories of his father’s shattered head and blood on the leaves, memories that had not been accessible to him before.

4.2.2. Case study 2: Moira

Moira was referred when she was 36 years old. She was suffering from PTSD, the onset of which followed a house fire in which her two children died. In the ten years since this tragic event, Moira had attempted to blot out the horror by drinking excessively and taking drugs. However, she had decided that for the sake of the children she had borne since the accident she should seek treatment.

4.2.2.1. Description of the trauma. Moira had been away at her father’s funeral, and came home to discover that her partner had let the house get into a terrible mess. He left, and Moira decided that she needed to clean up. She had two children under six, one of whom was disabled, and she decided to run to the shop for cleaning materials, leaving her daughter in charge. She planned to return within a matter of minutes. Whilst she was at the shop her friend ran in to tell her that her house was on fire. She raced home, and saw a blaze in the living-room, where she had left the children. Soon the fire brigade arrived, but by that time Moira (who was
pregnant) had been taken to hospital. The children’s bodies were removed from the house. One was dead, and the other was unconscious but died an hour later. The boiler had blown up, and the children had gone upstairs, but had been overcome by the fumes. Later Moira had to identify their bodies in the hospital to which they had been taken.

4.2.2.2. The recurrent intrusions (in Moira’s own words), as described in the Intrusions Interview.

1. Hear the ladders put up. Zapped back in front of the building. Carnage. The windows out, the curtains there but not there - burnt. Thousands of voices all trying to help. Just standing there; Jesus Christ. Looking at it, feeling the blood on my hand from the back window.

2. The two kids lying together in the hospital - Katie looked gorgeous, like she was sleeping. Just a singe on her hair. Jack quite black from the smoke, no burns, in his tracksuit. The doctor’s face- he had been crying, he could not save them. Not a mark on them. I took their clothes off.

4.2.2.3. Meanings of intrusions, reported in Intrusions Interview. The intrusions had different meanings from each other when experienced in the present:-

1. The intrusion of the window and the burning curtains in the living-room meant ‘the children are in there, and I can smell their bodies burning’.

2. The intrusion of the children’s bodies at the hospital meant ‘it’s a comfort. It’s a pleasure - I know they were not burned. Other people think they were burned, and rumours circulated.’ (Yet her initial distress rating was 70). Later other meanings surfaced: horror at the fact that both children were dead; regret that Katie had not survived; guilt about having such thoughts.

Although the intrusions had conflicting meanings: ‘the children are burning’ and ‘the children are not burnt’ Moira had never connected these thoughts with each other.
4.2.2.4. Intrusions as warning signals. Moira’s first intrusion constituted a warning signal: when she saw the living-room curtains burning she was horrified as she had told the children to stay in there, and now assumed that they must be in there, burning to death. She described her worst moment as being in the hospital, not knowing what would happen, and praying that she would ‘get something out of it’, which meant one of the children at least surviving. Her second intrusion occurred after this, reflecting the moment when she saw the children, and realized simultaneously that they had not been burned or died an agonizing death- but that they were both dead. Thus both her intrusions conveyed a sudden change of meaning, and the ‘worst moment’ did not.

4.2.2.5. Graphs of the intrusions. Graphs are presented for each of Moira’s intrusions, showing frequency, distress, vividness and ‘nownesss’ (Figures 13 and 14). Moira started reliving in the first session after the Intrusions Interview, whilst for most participants this was started in the second session. See graphs for intrusions 1 and 2.

In the second set of graphs (Figures 15-18) each characteristic is portrayed separately for the two intrusions over time.

4.2.2.6. Observations on the graphs. There was an initial slight rise in both intrusions after reliving started, soon followed by falling scores. After some initial desynchrony the qualities of Moira’s two intrusions tended to rise and fall in synchrony, with both disappearing altogether by session 8. There was, however, a slight recurrence (one intrusion of each kind) following Moira moving back to the area where the accident occurred, but no more intrusions were reported at follow-up assessments. It is notable that both intrusions disappeared in the week before session 5: however, Moira noted that ‘I think it’s hiding’. The intrusions returned the following week, intrusion 2 returning with some force, and some new meanings, before both intrusions faded away. Once again, there is remarkable synchrony between the intrusions, in terms of the weekly ratings of frequency, vividness, nowness and distress.
Figure 13.

Moira: Intrusion No. 1

Figure 14.

Moira: Intrusion No. 2
Graphs of frequency and other characteristics of intrusions

Figure 15.

Moira: Frequency of Intrusions

Figure 16.

Moira: Vividness of Intrusions
Figure 17.

Moira: Nowness of Intrusions

![Graph showing frequency of Intrusion 1 and Intrusion 2 over weeks.]

Figure 18.

Moira: Distress from Intrusions

![Graph showing frequency of Intrusion 1 and Intrusion 2 over weeks.]

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4.2.2.7. Sensory content

1. The first intrusion incorporated visual material (windows, curtains, boy putting up the ladder); auditory material (voices trying to help, shouting, bashing, ladders put against the wall); and bodily sensations (feeling of blood on the hand, just standing frozen).

2. The second only incorporated visual material (Katie looking gorgeous, Jack black from the smoke).

4.2.2.8. Triggers for the intrusions, reported by Moira at the Intrusions Interview

1. Songs on the radio from that time.
2. None noted.

4.2.2.9. Changes noted on the weekly Intrusions Questionnaires.

Changes in triggers.

It became clear that the intrusions had different types of trigger:

1. In treatment sessions 1, 3, and 4 Moira noted the following triggers for the intrusion of burning curtains: programs about fires, fire brigade passing me; burning some toast and doing the ‘what if’ crap for the rest of the night (i.e. ruminating about how life might have been different if...); reading about accidents that happened to other families.

2. In treatment session 1, Moira noted that usually if she saw someone of their age she wondered how the children would look now if they were alive, and had an image of how they looked in the hospital (intrusion 2). Otherwise, Moira did not note any triggers.

Changes in the memories

Session 2

1. Moira noted that ‘well I’ve been listening to my tape and it has reduced the fear of it all. I am not so taken aback. I’m not saying I am not upset but it’s not so hard to listen to it anymore’. Yet her ratings for the intrusions had all gone up at this point (except for nowness).

2. She also wrote ‘I have looked at what you said to me in great depth and have
brought all of these together instead of taking it as individual pain'.

Sessions 2, 3 and 4

1. Moira rated her distress at intrusion 2 (children’s bodies in the hospital) as rising steadily from 70 to 100 between the original Intrusions Interview and session 2. This was in spite of the fact that initially she had said this intrusion was ‘a comfort, a pleasure....’ In session 5 this part of the memory became temporarily more distressing, and more meanings emerged (e.g. horror at the fact that Katie was really dead, and that her hair had been singed; also guilt that she had prayed that Katie might survive even if Jack did not).

2. She also made various remarks on the Intrusions Questionnaires in treatment sessions 2, 3 and 4 about how the tapes of the recorded memories were getting easier to listen to. In session 3 she compared it to ‘listening to someone else’s hard times’, but also said ‘that in itself could be blocking’. In that session she also wrote ‘I no longer hide from the hard bits which is very hard, but have found myself disliking the tape-recorder, which is mad’.

3. In session 3 she tackled her distress that Jack had struggled for breath as a sick infant in an incubator, and then taken longer to die than his sister. She pictured him struggling for breath in the garden when he was rescued. This was not something she had witnessed, but an elaborative image, coloured by memories of past trauma, having seen him fight for breath as a baby. In fact the fire brigade was able to inform us that he would have been almost immediately deeply unconscious once overcome by the fumes. This was built into the reliving: Moira imagined herself living Jack’s life from start to finish. There was evidence that since he had brain damage he did not feel much pain as an infant, and she took him past the point of being overcome by fumes, into a tunnel, and out into a place where his sister, his granny and his granddad were waiting for him in Heaven. These were Moira’s own conclusions about what Jack might have experienced.

Session 5. Session 5 was marked by a sudden disappearance of the intrusions. Moira wrote ‘I feel it’s hiding’. She had spent a lot of time in bed, and had been drinking again. New elements came into the reliving in that session.
Moira was more aware that Katie had cried when she wanted to leave her in charge of Jack.

Session 6. In session 6, the intrusions had returned, at a higher frequency than in session 4, but with lower ratings on intrusion 1, and higher ratings on intrusion 2 (the children’s bodies in the hospital). Also, the reliving in this session was much more emotional, with more horror expressed over Katie’s dead body.

Katie became the focus of the session, with Moira confessing that she felt horribly guilty about having wished at the time that Katie might survive, if only one child lived. This was because Jack had been disabled. She had also written in the Intrusions Questionnaire that ‘as punishment I’ve blotted out a lot of good things’.

During the week she had also been troubled with an intrusion she had not told me about before: Katie’s crying face when she told her she was going to the shop. This was the only occasion on which she described this, and the intrusion did not occur again. To Moira this meant that she was a bad mother, and we challenged this in the session by discussing other aspects of Katie’s life. During reliving Moira ran the image on past the point where Katie was crying, to a point where she was playing and looking at her nice new shoes. She ran through the reliving from Katie’s perspective, so that she cheered up when her mother went out, and also took her past the point of death, down a bright tunnel, towards her grand-dad, who had just died the week before.

Session 7 In this session Moira wrote of the first intrusion (burning curtains) ‘I feel more content with myself about that aspect of the fire’.

Of intrusion 2 she wrote ‘Listening to my tapes has made me put the life of my Katie together again instead of all my memories being trapped’.

Session 8-11, and follow-up appointment 1 month later. From session 8 onwards the intrusions all disappeared.

In session 9 Moira wrote ‘I have gotten it into proportion. It’s no longer exaggerated’. Also: ‘I now see Katie smiling all the time, and it feels good’.
In session 10 she wrote ‘I am seeing Katie smiling and remembering a lot of good times’.
At the follow-up session she wrote that the thing that had changed about the memories was ‘there is now no pain’. However, she had one fleeting intrusion of each kind, following moving back to the area where the accident occurred. After this the intrusions did not recur.

4.1/2.3. Conclusions from the Case Studies

A number of points made in the results and discussion sections of the group study appear to have been demonstrated in these two case studies. In both cases there were only a small number of intrusions, which occurred recurrently in the early weeks of assessment and treatment. Each patient also experienced a new intrusion during therapy, but these quickly faded with the rest.

Predominantly intrusions were memory fragments reflecting what had really been experienced at the time. However, one of Moira’s was an imagined scenario, coloured by past traumatic experience, and two of Clive’s were seen from an observer perspective. All the original images contained visual material, and most also contained bodily sensations. Each patient also had one image with some auditory material incorporated, and only one image involved a smell or taste. This pattern of sensory modalities follows what has been widely observed (see Ehlers et al. 2002).

The different intrusions had different triggers, which initially had sensory characteristics reminiscent of the trauma. However there were also meaning cues for some of them, e.g. ‘songs on the radio from that time’; ‘anything or anybody connected with the past’. It is also interesting that Clive’s PTSD was ushered in after many years by such particular matching triggers: bad news coming in an (identical) white deal envelope. Also Moira’s intrusions were (temporarily) re-instated in identical form by returning to the locality of the trauma. Such observations suggest that trauma memories can be re-evoked by sufficient matching cues, even when they appear to have been successfully processed (Brewin, 2001).

Most of the intrusions could be classified as ‘warning signals’, as suggested by Ehlers et al. (2002), as they reflected moments when meaning suddenly changed, implying impending threat. Most were reported as occurring before what Clive and Moira had each defined as their worst moment.
In the initial stages there were times when distress, 'nowness' and vividness increased, and when reliving was more emotional. At such times new aspects of meaning were accessed, and new distressing material was recalled, and shared with the therapist. Beyond a certain point the images tended to join up with one another, or with other more reassuring information, gradually blending into a coherent and less distressing version of events. At the same time the sensory qualities were fading and disappearing. In both cases the images finally disappeared in synchrony. It would be interesting to look more closely at such processes in more detail in the future.

Perhaps the best way to end this research dossier is with quotes from Moira's 'blueprint' of what she learned in cognitive therapy, which clearly evoke a sense of how the process worked for her, and how the intrusive memories changed:

'There were several flicks of memory, but these never even connected with each other. For example, the idea that the children were burning which occurred in flick 1 was not connected with the fact that they did not, which was revealed in flick 2. They seemed isolated particles stuck in their own horror. They were there every day of my life. The flicks were taken by me as a warning. When I got them I felt that this was the signal that I should not be laughing or happy. I then went into self-punishment. They clouded everything. However, I did not bring them out or push them away. They were simply there and I did not deal with them.'

and she also wrote:

'Therapy involved facing the demons for a change. This meant I could actually see them for what they were. They were made up of lies and exaggerations. They did not connect up with the rest of reality. Now I see they are very weak and I am strong and smart, I know how to deal with them. A small part of me always knew that my mind was playing tricks on me. The trick that it was playing was to signal me with messages that I had already taken on board a long time ago. The flicks worked like wake-up calls which were never useful and were very distressing. The human mind is organized so that we do get these wake-up calls after we have been through something traumatic, but that when we get them we need to compare what is being said with what actually fits reality. I now feel I have a new memory. I have put all the
facts together; I have an updated version of events. There is only one flick now, which incorporates everything. There is no demon ruling it. I can dwell on it all and even enjoy it. I can analyze it. I am ruling it now because I know the facts. I have got it all in proportion and it is just one thing.'
References


Appendices
Appendix A

Intrusions Interview

Name: ______________________________________

Intrusion No. ________ Date: _______________________

You have told us that memories of the ______ (trauma) pop into your mind when you do not want them to. Could you please tell me what these memories are like? (Write down a description for each of the memories, on separate forms).

Could you tell me a bit more about how you experience this memory? What is it like?

Is it more (please tick)

☐ like a thought (describe: ________________________________________)

☐ like a feeling (describe: ________________________________________)

☐ or like a sensory experience

If it is like a sensory experience, is it (please tick)

☐ visual (describe: ________________________________________)

☐ sounds (describe: ________________________________________)

☐ as if hearing sentences that were spoken then
    (describe: ________________________________________)

☐ smells (describe: ________________________________________)

☐ visual sensations (describe: ________________________________________)

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Please circle which of the sensory impressions is most striking.

How often did this memory pop into your mind in the last week? ______/week

How vivid was the memory? 0 10 20 30 40 50 60 70 80 90 100
not at all moderately very much

How distressing was the memory? 0 10 20 30 40 50 60 70 80 90 100
not at all moderately very much

To what extent did it seem to be happening now instead of being something from the past?
0 10 20 30 40 50 60 70 80 90 100
not at all moderately very much

Are you aware of any things that seem to trigger this memory, for example, places, people, clothes, TV programmes, feelings, smells or sounds)?

YES/NO If yes, please describe:

What was the worst moment during ______ (trauma)?
Describe:

Is the memory that pops into your mind something that happened (please tick)

_____ before worst moment _____ during worst moment _____ after worst moment

What does it man to you when this memory pops into your mind?
Describe:
Interviewer please try to classify intrusion (check appropriate category)

____ distinct stimulus that preceded trauma

____ moment when patient realised something that gave the situation meaning (e.g., that he/she may be hurt or not be hurt, tragedy of situation)

____ unresolved interpersonal issue (e.g., moment when patient missed chance to do something)

____ trapped

____ injuries

____ worst moment
Intrusions Interview Study – Protocol

1. Initial Interview: Ann will interview new patients about their major intrusive recollections. Ann will fill in an interview form for each of these intrusions. We will focus on intrusions related to the trauma and not include intrusions about future catastrophes at this point.

2. After the initial interview, Ann will prepare questionnaire forms for each of the major intrusions (fill in patient name and give a brief summary of the intrusion to be rated). She will give 15 copies of these sets to the therapist. The therapist asks the patient to fill in one set of intrusion questionnaires together with the PDS/BDI/BAI before each session.

3. If the patient indicates that a new intrusion has appeared, the therapist will fill in the interview form or arrange with Ann for her to do the interview about the new intrusion. Questionnaires will then be prepared as described in 2. and administered in the subsequent sessions.
Appendix C

Intrusions Questionnaire

Name: ____________________

Intrusion No. _________ Date: ____________________

MEMORY:

How often did this memory pop into your mind in the last week? ________ /week

How vivid was the memory? 0 10 20 30 40 50 60 70 80 90 100
not at all moderately very much

How distressing was the memory? 0 10 20 30 40 50 60 70 80 90 100
not at all moderately very much

To what extent did it seem to be happening now instead of being something from the past?

Are you aware of any things that seem to trigger this memory, for example, places, people, clothes, TV programmes, feelings, smells or sounds)?

YES/NO If yes, please describe:

Has anything about the memory changed?

YES/NO If yes, please describe:

Did any new memories of the trauma start popping into your mind?

YES/NO If yes, please describe:

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