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Empirically Grounded Clinical Interventions Section

COGNITIVE RESTRUCTURING WITHIN RELIVING: A TREATMENT FOR PERITRAUMATIC EMOTIONAL ''HOTSPOTS'' IN POSTTRAUMATIC STRESS DISORDER

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Abstract. This paper describes a distinct clinical approach to the treatment of Posttraumatic Stress Disorder (PTSD). It is theoretically guided by recent cognitive models of PTSD and explicitly combines cognitive therapy techniques within exposure/reliving procedures. A clinically pertinent distinction is made between the cognitions and emotions experienced at the time of the trauma and, subsequently, in flashback experiences, and secondary negative appraisals. The term peritraumatic emotional ''hotspot'' is used to describe moments of peak distress during trauma. It is argued that a focus on cognitively restructuring these peritraumatic emotional hotspots within reliving can significantly improve the effectiveness of the treatment of PTSD and help explain some treatment failures with traditional prolonged exposure. An approach to the identification and treatment of these hotspots is detailed for a range of cognitions and emotions not limited to fear.

Keywords: Posttraumatic stress disorder, PTSD, cognitive behaviour therapy, ''hotspots''.

Introduction

Traditional cognitive behavioural models of PTSD focus on the therapeutic strategy of imaginal exposure, which is also referred to as ''reliving'' (Foa & Kozak, 1986; Foa, Stek-

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etee, & Rothbaum, 1989). In addition, recent cognitive models have emphasized the need for the use of cognitive therapy to address negative appraisals (Ehlers & Clark, 2000). It is argued in this paper that there is a clinically pertinent distinction between cognitions and emotions that are experienced at the time of a traumatic event, i.e. peritraumatically, and secondary appraisals, made after the time of the event. Those that are peritraumatic may require different assessment and treatment strategies than later appraisals. Furthermore, it is argued that treatment should be focused on the specific parts of the trauma memory that cause most distress – emotional ''hotspots''. For such peritraumatic emotional hotspots the therapist needs to use cognitive restructuring within (during) the reliving procedure for maximal effect. A clinical approach to this is presented with four case examples.

Recent developments in cognitive models for PTSD make a distinction between the nature of the trauma memory and negative appraisals of the event, symptoms and sequelae (Brewin, Dalgleish, & Joseph, 1996; Ehlers & Clark, 2000). Brewin et al. (1996) argue that trauma memories are stored in two separate parallel systems. Situationally Accessible Memories (SAMs) are encoded at the time of trauma and may be stored in a fragmented, sensory and context-less manner. They can be triggered by cues, leading to re-experiencing symptoms, but not voluntarily retrieved. Verbally Accessible Memories (VAMs) are the autobiographical memories of the trauma that can be deliberately and progressively accessed and edited. Successful emotional processing of a traumatic event will result if sufficient VAMs are formed and accommodated within an individual's belief system, which will then prevent the continued reactivation of SAMs.

Extreme fear, helplessness or horror is thought to inhibit immediate full emotional processing of the traumatic event at the time (Foa & Kozak, 1986; Rachman, 1980). Among other factors, this disrupts formation of an autobiographical memory (VAM). Instead, the memory – including, for example, visual, auditory, olfactory, and emotional components – is stored in a fragmented fashion (SAM). As these fragments are triggered by matching stimuli, they come into consciousness as intrusive memories, flashbacks and nightmares. It is hypothesized that SAMs, unlike normal autobiographical memories, do not include a ''time-tag'', incorporating information that the event is in the past. Thus, the intrusive phenomena are typically associated with a sense of serious current threat, leading to anxiety (Ehlers & Clark, 2000). In addition, if the individual has negative appraisals of the event itself, and/or its sequelae, these will serve to increase the sense of threat and also lead to other symptoms such as low mood. The person may attempt to control these symptoms and reduce the apparent immediate threat with a variety of strategies, including thought suppression and avoidance of triggers. Thus there is little further emotional processing of the memory and the fragmented memory is maintained (and SAMs continue to be reactivated).

Currently there is limited empirical evidence for the proposed distinction between verbally and situationally accessible memories. However, there is some support from cognitive neuroscience approaches (Brewin, 2001), and studies of patient populations (Hellawell & Brewin, 2000; van der Kolk & Fisler, 1995). For a more detailed discussion of memory approaches and their implications for this model readers are referred to a recent review (Brewin, 2001). At the very least the distinction between SAMs and VAMs is a clinically useful heuristic for distinguishing the nature of the trauma memory from normal autobiographical memory.

The nature of processing at the time of trauma influences the subsequent development of post-trauma symptoms. Studies of trauma survivors have shown that those who report that

they experienced high levels of peritraumatic dissociation are more likely to develop post-traumatic stress symptoms (Marmar et al., 1994; Shalev, Peri, Canetti, & Schreiber, 1996). Ehlers and colleagues (1998) found that those people identified during reliving as having experienced ''mental defeat'' during an assault responded less well to exposure treatment. Further studies examining mental defeat have found it to be predictive of chronic PTSD (Dunmore, Clark, & Ehlers, 1999; Ehlers, Maercker, & Boos, 2000).

Traditionally, cognitive behavioural treatment approaches focus predominantly on fear during reliving (Richards & Lovell, 1999). The current treatment of choice for PTSD is prolonged imaginal exposure to the memories of the traumatic event, to reduce the anxiety surrounding them through extinction (Foa & Meadows, 1997). Exposure/reliving is thought to work by facilitating the complete emotional processing of the event. This is thought to address both the nature of the trauma memory and negative appraisals. When the nature of the trauma memory has changed it may be expected that some appraisals will also change, via spontaneous cognitive restructuring, since they are now based on different information, namely integrated memory. For example, a patient who feels ashamed of how they conducted themself during the trauma through reliving may remember more praiseworthy behaviour. Another example would be a person who initially thinks that they are to blame for some element of their event and feels guilty. However, they find that this reduces when they judge themselves on a more complete memory, rather than on the unintegrated fragments. Furthermore, once the trauma memory is emotionally processed a time-tag will have been applied to the memory (i.e. giving information that it occurred in the past) and the interpretation of current threat will change.

The relatively few studies investigating the impact of cognitive therapy for PTSD show that cognitive therapy without exposure is as successful as prolonged exposure (Marks, Noshirvani, Livanou, & Thrasher, 1988; Tarrier, Sommerfield, Pilgrim, & Humphreys, 1999). Cognitive therapy without exposure for PTSD often focuses on secondary negative appraisals (e.g. ''I'll go mad if I think about it''; ''It is too dangerous to go to [x place]). In particular this may address any ''shattered assumptions'' about the world or the self, such as changes from ''the world is benevolent'' to ''the world is dangerous and ''I am worthy'' to ''I am unworthy'' (Janoff-Bulman, 1992). Changing such appraisals may allow the individual to hold the event in mind long enough to allow further emotional processing, often activated after a return to activities or places that were previously avoided. Thus interventions directed at negative appraisals can also have an effect on the nature of the trauma memory. There is symmetry between these treatments: focusing on the trauma memory can change negative appraisals; and, equally, focusing on negative appraisals can help facilitate change in the nature of the trauma memory. However, studies do not demonstrate any advantage of cognitive therapy over reliving.

At least two sets of authors have discussed the importance of identifying hotspots in the traumatic memory (Ehlers & Clark, 2000; Richards & Lovell, 1999). Richards and Lovell (1999) imply that hotspots are moments of peak fear that need further exposure in order to ensure habituation. Ehlers and Clark (2000) by contrast argue that the predominant emotions present (which may or may not be fear) are a clue to the cognitive themes and suggest that these moments should be explored further to identify meanings. Holmes and Brewin (2000) provide some experimental support for the notion of hotspots during a traumatic experience and the memory for it. They used a prospective design to examine analogue trauma in a non-clinical sample. High levels of state dissociation during moments of a stressful film

were associated with the development of intrusions that matched the film's content at these moments.

The American Psychiatric Association's Diagnostic and Statistical Manual (DSM-IV; APA, 1994) specifies that a person must have experienced fear, helplessness or horror during the traumatic event to qualify for a diagnosis of PTSD. However, recent reports highlight the importance of other emotions experienced strongly during or after the traumatic event, such as shame and anger (Brewin, Andrews, & Rose, 2000; Lee, Scragg, & Turner, in press). Clinical experience indicates that it is not only fear that is experienced at the time of the traumatic event, i.e. peritraumatically. Recent reports have shown the range of possible peritraumatic emotions and cognitions, including anger (''How dare you do this to me?''), sadness (''Nobody cares'') and shame (''I'm weak'') (Grey, Holmes, & Brewin, 2001).

Peritraumatic hotspots are more likely to be SAMs as they are often perceptual in nature (Brewin et al., 1996). They may be more difficult to retrieve voluntarily than ordinary memories, as they are stored in memory in a fragmented way. Therefore, in therapy, they might only be detected during a therapeutic procedure such as reliving, because this allows access to non-VAM memories. However, our analysis goes beyond the original conceptualization of SAMs provided by Brewin et al. (1996). Their paper stated only fear as the emotion within a SAM. From our clinical experience, we argue that any type of peritraumatic emotion and cognition, however much conscious appraisal it requires, is available to be encoded into SAM, and to support later reliving experiences, provided it occurs in a context of at least moderate fear (Grey et al., 2001). We suggest a symmetry between what is encoded peritraumatically and the content of trauma intrusions. For example, peritraumatic disgust encoded into SAM will result in intrusions containing disgust.

Traditionally verbal cognitive restructuring, in a non-reliving therapy session, can be helpful for secondary negative appraisals. However, it may not affect the emotions and cognitions experienced peritraumatically, as they may be stored in a fragmented state, in a different memory system (SAM). Previous accounts of cognitive therapy for PTSD have not made this distinction clear. This may help to account for some treatment failures with the use of cognitive therapy alone. First, it may not be possible to identify (and thereby modify) these peritraumatic cognitions if reliving is not used. Second, not all the secondary appraisals can be adequately addressed without reliving. For instance, ''I'm to blame'' or ''I should have been able to defend myself'' may be evaluated more accurately with a complete narrative of the event rather than unintegrated fragments. Treatment failures with the use of reliving alone may be as a result of not directly addressing non-fear-based peritraumatic emotions and cognitions that have not spontaneously cognitively restructured. Exposure may be particularly good at changing cognitions about perception of danger, through spontaneous restructuring, but may be less good at changing conditions related to negative self-evaluation, such as those associated with guilt and shame (Lee et al., in press), or mental defeat (Ehlers et al., 1998). In these cases, simple exposure may increase distress if there is no spontaneous change in the negative cognitions.

This paper describes clinical methods for identifying and working with the variety of peritraumatic hotspots in PTSD. It attempts to combine the empirically supported approaches of exposure/reliving and cognitive therapy, in order to improve the effectiveness of treatment of PTSD, by using cognitive restructuring within the reliving procedure. It expands upon the brief section in Ehlers and Clark (2000) that described reliving and cognitive restructuring. Case examples are given illustrating a range of peritraumatic emotional

hotspots and how they may be cognitively restructured within the reliving. Our approach fits with traditional cognitive therapy approaches in that most cognitive change will occur when cognitions are addressed at times of high affect (Beck, 1995). It also suggests that imagery based restructuring of meaning may be helpful at these times, since this is the state in which much of the traumatic memory is stored (SAM) (Brewin et al., 1996; Ehlers & Clark, 2000). The approach in this paper draws on work within cognitive therapy for childhood trauma and personality disorders such as imagery rescripting (Edwards, 1990; Smucker, Dancu, Foa, & Niederee, 1995; Arntz & Weertman, 1999).

Clinical method

Basic exposure/reliving

There is compelling evidence that exposure/reliving of the traumatic event is a successful approach to the treatment of PTSD (Foa & Meadows, 1997; Van Etten & Taylor, 1998). There are a number of rationales that can be used to explain to patients the utility of such a procedure (Richards & Lovell, 1999; Ehlers & Clark, 2000). During the reliving procedure patients are guided to describe the trauma in the first person present tense, as if it were happening now, giving as much detail as possible, including visual, auditory, physical, emotional and cognitive information (Foa & Rothbaum, 1998). This is aided by asking questions such as ''What is going through your mind right now?'' ''How do you feel?'' ''What can you see/hear/smell?''. The focus during this procedure is on exposure to fear experienced at the time. Typically these reliving sessions will last at least 90 minutes in order to allow the patient time to describe the trauma, to discuss the experience afterwards, and to become calmer again before leaving the session. The sessions usually occur on a weekly basis, with the patient listening to a tape recording of the reliving session as often as possible for homework between sessions. In our clinical experience and workplace, the total duration of therapy following assessment is between 8 and 20 sessions.

Identifying peritraumatic hotspots

In order to help identify hotspots during a patient's trauma narrative, the patient is regularly asked to rate the levels of their emotions experienced on a subjective units of distress scale (SUDS) between 0 and 10. Socratic questioning (e.g. ''What is going through your mind now?'' ''What does that mean to you?'') is used to identify the associated cognitions and meanings for each hotspot. After the reliving procedure patients are asked whether these hotspots actually occurred at the time of the trauma or were later appraisals. Patients are also asked to identify the worst moments of the event and whether any surprising or new memories were recalled (which are more likely to be SAMs). Our experience is that hotspots almost always form the content of the most distressing reexperiencing symptoms, such as flashbacks.

In addition to asking about the worst moments and the use of the SUDS, there are other ways of potentially identifying such hotspots during reliving. The most obvious of these is to look for a visible change in affect during the procedure. If the patient suddenly bursts into tears or shows clear physiological changes, such as turning red, shaking or becoming very sweaty, this may indicate a hotspot. As within standard cognitive techniques, this is a

''golden moment'' for the therapist to ask what is passing through the patient's mind at that moment and how they are feeling.

There are a number of more subtle changes that may also occur during the reliving procedure that may highlight for the therapist the possible existence of an emotional hotspot. First, the patient may change from the present to past tense when describing the event (''I am on the floor'' to ''I was on the floor''). Second, the patient may change from the first person to the third person in their description (''I am on the floor'' to ''He/she is on the floor''). This may be an indication of peritraumatic dissociation and the patient should be asked if the scene seems to be happening to them or if it appears that they are observing it happen to someone else (as an ''out-of-body'' experience). Third, descriptions of particular aspects of the event may be ''whizzed through''. For example, a patient may describe the build up to, and aftermath of, the traumatic event in great detail but then only give cursory descriptions of the main event (''I am walking down the road. I can hear footsteps behind me. I am attacked. He runs off and I am lying on the floor.''). This may occur many times even when the therapist gives further prompt questions (e.g. ''What else can you see/hear/feel''). Fourth, the person may report that they are unable to remember the details of that moment. All of these examples can be conceptualized as possible (non-conscious) avoidance of, and protection from, highly distressing emotional material. Organic amnesia caused by brain injury, or other physical insults, must also be considered.

In order to explore further whether a change in patient behaviour indicates a potential hotspot, the ''rewind-and-hold'' technique described by Richards and Lovell (1999) can be employed. The patient is asked to hold the moment prior to tense change, person change, or whizzing through vividly in their mind (e.g. ''I would like us to go back to that moment when [x occurred]. Can you picture that vividly in your mind and hold it there?''). The therapist will ask the same questions as at other times in the exposure, such as ''What can you see/hear/smell/feel at this moment?'' When the image is experienced as vivid the therapist can then probe for cognitive content, for example by asking ''What is going through your mind right now?'', ''What does this mean to/about you?''. The patient is then encouraged to move slowly through the next moments of the event, whilst being asked the same questions, and also to rate levels of distressing emotions. This procedure can be repeated until sufficient detail has been uncovered.

Beck's (1976, p.51) content-specificity hypothesis suggests that there should be a clearly identifiable and logical link between the particular cognition (or its idiosyncratic meaning) and the emotion experienced. Mapping out such hotspots in an ABC format, as indicated in Table 1, may help identify missing thoughts or feelings from a trauma narrative. For example, if, during a physical assault, an individual reports feeling sadness rather than anxiety associated with the thought ''I'm going to be killed'', further questioning may be helpful to uncover underlying meanings, such as ''They're taking away my chance to have children.''

The clinician should not presume when an event ceases to be traumatic for the patient. Time spent in an ambulance, at hospital or seeking help may also contain moments of high emotion, even though the original incident may appear to have ended. A longer duration of traumatic event may be more likely to lead to a greater number of hotspots. In the early stages of therapy, reliving will usually involve the whole event, until patients know that they are safe (Ehlers & Clark, 2000).

Table 1. Peritraumatic hotspots reported in the case examples

Case	Situation	Cognition	Emotion	SUDS
1	Feel sleepy after accident	If I fall asleep now I could die from internal injuries	Fear	8
2	See uncle's body	It's my fault	Guilt	10
3	Being towered over by assailant	I'm the lowest of the low; I'm bad	''Humiliation'' shame	10
4	Touching own wet genitals	It's filthy dirty. His germs are on me	Disgust	10

Restructuring peritraumatic hotspots

After reliving, there is further discussion with the patient about the various hotspots and their cognitive content. Traditional verbal cognitive restructuring techniques can be used in order to attempt to address this (Ehlers & Clark, 2000). This can be skilfully and successfully done outside of the reliving (e.g. ''What is it about this situation that makes you weak?'', ''How is it that you are to blame?'', and ''What would you say to a friend in this situation?''). However, it is commonly our experience that, following such cognitive therapy, some patients report that they ''know'' logically that what they were thinking is not accurate or fair but that they still ''feel'' the same – the distinction between ''knowing with the head and knowing with the heart'' (Teasdale & Barnard, 1993).

In order to help introduce the new corrective information into the reliving procedure, the therapist should explain the rationale to the patient. For example: ''Often, during trauma, memories are stored in a different place from all other memories. This store is unusual because, unlike our normal memory store, it isn't constantly updated and reinterpreted. For example, often a memory of something you did as a teenager will be remembered different when you get older. This is because new information is added to your memory store, changing your understanding of events. While I talk to you about the [traumatic event] now in the session, the discussion updates your normal memory store. However, it often leaves your trauma memory untouched. So the memory is essentially ''frozen in time''. So, when a reminder triggers it, the full force of the original event comes into your mind, along with the thoughts and feelings that you had at the time, as if it were happening again. What we need to do is to activate this trauma memory and update it, using the information you know now in the arguments we have rehearsed. This will help make it more like your normal memories.'' As always in cognitive therapy, it should be checked that the patient understands this rationale. It should be noted that the patient will previously have received a rationale for ''plain'' reliving.

The explanation will be followed by rehearsal of specific cognitive reappraisals that can be made and the moments at which they will be introduced (i.e. the hotspots). This can be facilitated by use of a dysfunctional thought record, i.e. simply extending the ABC format of Table 1 to include reappraisals. Within the restructuring, the therapist can prompt the introduction of these by socratic questioning (e.g. ''What would you say now?'', ''And what do you know now?'', ''Is there another way of looking at that?''). Additionally, imagery

Table 2. Phases in addressing peritraumatic emotional hotspots

Phase 1: initial reliving
• Rationale for reliving
• Identify peritraumatic emotional hotspots during reliving
• Identify the associated cognitions/meanings
Phase 2: cognitive restructuring outside reliving
• Discuss hotspots and attempt cognitive restructuring outside reliving
• Rationale for cognitive restructuring within reliving
• Rehearse possible reappraisals for later reliving
Phase 3: cognitive restructuring within reliving
• Reliving of whole event/focus on specific hotspot
• Hold hotspot vividly in mind (rewind-and-hold)
• Socratic questioning to bring in ''new'' (and rehearsed) information to modify the cognition/meaning

interventions can also be usefully employed to change specific meanings at these points (see Hackmann, 1988). The overall structure of the procedure is shown in Table 2.

We have found that not all hotspots may be identified during the first reliving and further sessions may identify new ones that were previously inaccessible. Furthermore, reliving facilitates the retrieval of elements of the trauma memory that the patient cannot otherwise deliberately access (as they are SAMs). This retrieval may result in spontaneous cognitive restructuring of peritraumatic cognitions. Therefore it may not be necessary to follow the above procedure for every hotspot.

As Ehlers and Clark (2000) indicate, there is a sensitive balance to be struck between identifying and changing appraisals and ensuring that the reliving is thorough enough to activate all the emotional components of the memory, to achieve fuller emotional processing. Therefore, in therapy using cognitive restructuring within reliving, the emphasis on also achieving ''full reliving'' is crucial. There are a number of secondary appraisals and emotional responses that may prevent this. First, low mood or high levels of anger (Jaycox & Foa, 1996). Second, if a trusting therapeutic relationship has not been established or if the patient has particular assumptions about expressing emotion, then sufficient affect may not be accessed in session. In these cases the ''blocking'' secondary appraisals need to be addressed prior to any further reliving. Finally, even after full emotional processing of the trauma memory, it is likely that there will be a need to address secondary appraisals, such as ''The world is a dangerous place'', which are not necessarily directly related to the nature of the trauma memory.

Overview of method

We have described a formal procedure for something that can occur fluidly during the course of reliving, with a few judicious socratic questions. We believe that therapists may need to be skilled at cognitive restructuring techniques and have experience of working with people with PTSD before attempting such interventions. We recommend that following this proced-

ure in the stepwise fashion outlined in Table 2 is helpful, particularly for inexperienced therapists. In addition, it may also be useful for trauma of prolonged duration, in which there may be a greater number of peritraumatic hotspots. In our experience, it is prudent to have a cognitive-affective script, in an ABC format, of how the trauma unfolds, prior to specific restructuring. This can be drawn up together by therapist and patient after the first reliving session and edited after successive sessions.

Case examples

The variety of peritraumatic emotional hotspots and associated cognitions has been reported previously (Grey et al., 2001). The hotspots reported here are single examples from individuals. All patients met criteria for PTSD and these hotspots were associated with either their flashback experiences or nightmares. Following Brewin et al.'s (1996) terminology these correspond to SAMs (Hellawell & Brewin, 2000). The patient's other hotspots and secondary appraisals are not fully reported here. Some data on outcome and number of sessions are given in order to provide a broader context for these specific interventions. However, the purpose of these examples is to highlight a particular therapeutic technique rather than present full case reports.

Cognitive restructuring of a peritraumatic hotspot associated with fear

RT was a 34-year-old man who experienced a motor vehicle accident 2 months prior to therapy. Five peritraumatic hotspots were identified, of which four were associated with fear or helplessness, and one with sadness. One fear hotspot occurred towards the end of the trauma when the ambulance arrived and RT wanted to lie down and go to sleep. During the reliving he became very afraid at this point. He identified the associated thought to be ''If I fall asleep now I could die. I'm in pain and there might be something wrong on the inside.''

Following discussion in the session outside of reliving, the reliving procedure was repeated. RT was asked to focus on holding that point vividly in his mind and was socratically guided to bring in the information that he knew now, and not simply what he had experienced at the time. A transcript of this is provided below.

Therapist: What happens now?
RT: I'm trying to make an attempt to lie down.
Th: Uh huh . . .
RT: If I lie down something may happen.
Th: What do you think will happen?
RT: If I fall asleep I may not wake up again.
Th: How would that happen?
RT: I'm not sure what's wrong with me . . . the pain . . . it could be damage inside.
Th: How are you feeling right now?
RT: A little bit terrified and telling myself that I need to stay awake.
Th: . . . telling yourself you need to stay awake. I just want you to focus on this moment and hold it clearly in your mind.
RT: Uh ha . . .
Th: In the session at this moment, how anxious are you feeling, between zero and ten?
RT: About eight.

Th: You feel terrified that if you lie down and go to sleep you may not wake up again because of internal injuries you think you have. In reality, what is the case about your injuries?
RT: I didn't have any internal injuries and no broken bones.
Th: And if you did lie down and go to sleep at this moment what would have happened?
RT: Nothing.
Th: In the session right now, with the scene clear in your mind, how anxious do you feel between zero and ten?
RT: About two.

This turned out to be a particularly simple procedure in this case, with an immediate reduction in affect. It can be conceptualized as providing temporal context for the trauma memory and connecting it better with normal autobiographical memories. Further reliving of this part of the event did not lead to any increase in anxiety. In order to reinforce further this newly reconstructed memory, RT listened to the tape of the reliving between sessions. Although prolonged exposure would most probably have worked very well with this case of peritraumatic fear, a simple cognitive technique reduced the need for repeated reliving sessions. It is not always the case that such immediate effects are observed. The total duration of RT's therapy was 14 sessions, with only one focused on this hotspot. Over the total course of therapy scores on self-report measures reduced: from 37 to 9 on the Beck Anxiety Inventory (BAI; Beck, Epstein, Brown, & Steer, 1988); from 28 to 7 on the Beck Depression Inventory (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961); and from 50 to 15 on the Penn Inventory for Posttraumatic Stress Disorder (Penn: Hammarberg, 1992).

Cognitive restructuring of a peritraumatic hotspot associated with guilt

LC was a 30-year-old refugee from Afghanistan who arrived in the UK three years prior to assessment. Having worked as an accountant, she had been forced into hiding when the Taliban regime proclaimed that it was against Islamic law for women to work. This was one year prior to arriving in the UK. She had been staying in her uncle's cellar for many weeks when soldiers who had learnt of her presence came to the house and killed him. Five peritraumatic hotspots were identified, two associated with fear, one with helplessness, and two with guilt. The worst of these occurred when, on seeing her uncle's body, she thought ''It's my fault.'' LC relived this moment through daily nightmares (her most troubling symptoms), which were also associated with intense guilt.

Repeated reliving within and between sessions produced a reduction in LC's fear and distress. However, her nightmares retained their frequency and she reported no reduction in guilt. Thus, LC's feelings of responsibility were approached in two stages. First, she was encouraged to rethink the 100% responsibility that she reported experiencing through two exercises. A responsibility pie chart was constructed (Greenberger & Padesky, 1995). In this, LC was asked to generate ideas about all the people who could possibly be held responsible for her uncle's murder (see Figure 1). In this way, she reduced her feelings of responsibility to 50%. Socratic questioning was also employed (Kubany & Manke, 1995; Kubany, 1998), a partial transcript of which is provided below.

LC: I am to blame for my uncle's death, because I was at his house.
Th: Can I ask how you came to the decision to go to your uncle's house?

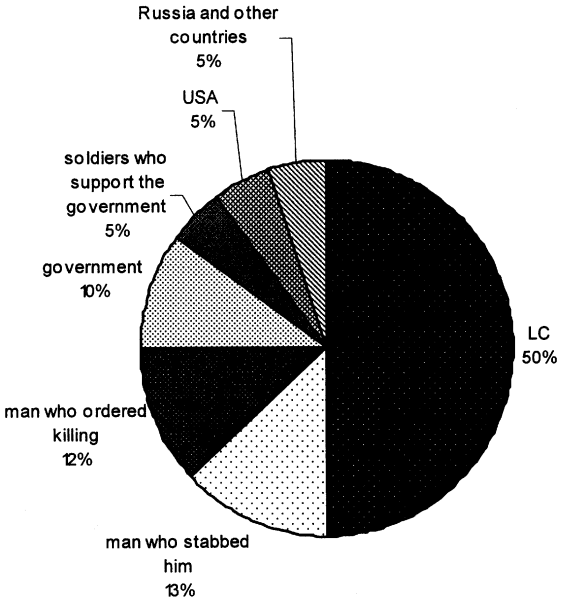

Figure 1. Responsibility pie showing relative contributions to uncle's death after *initial* intervention.

LC: He suggested that I go there, as there was very little Taliban activity in the area, no house searches had been made for many months.
Th: So did you go straight away?
LC: No, I did not want to go, I did not want to place him in danger.
Th: So how did you come to go there?
LC: He persuaded me to go, he said that it would be safest.
Th: Can you cast your mind back to the time and tell me how safe you thought it would be to go to your uncle's house, say, out of a hundred?
LC: I thought that there was only a very small chance of danger, 10–20%.
Th: So you didn't know it was dangerous?
LC: No, I didn't.
Th: I'd like to discuss a scenario with you to see what you think. Imagine a child sees an electric iron for the first time in their life and go up to it and touches it. Would you blame the child for their subsequent burn?
LC: No.
Th: If the child went back to the iron the next day and touched it again, would you blame him/her for the burn?
LC: Yes, I would.
Th: What's the difference between the child on the first, and on the second day?
LC: On the first day, the child didn't know, but on the second day, they were warned.
Th: So what would you say is the relationship between knowledge and blame?
LC: You're not to blame if you don't know something is going to happen. If you know it is going to happen, then you are to blame.
Th: So how does this relate to you?
LC: I didn't know it was going to happen.
Th: So what does that say about whether or not you are to blame?

LC: I am not to blame because I didn't know. But I should have known it was going to happen.
Th: How could you have known that it was going to happen?
LC: I don't know.
Th: Well, let's think about this. How could you have known that something was going to happen in the future?
LC: I don't know.
Th: What would you have to be to know what was going to happen in the future?
LC: A fortuneteller, a gypsy.
Th: Are you a fortuneteller?
LC: No.
Th: So how could you have known what was going to happen?
LC: I couldn't have.
Th: So what does that say about your responsibility for your uncle's murder?
LC: I didn't know what would happen, and I couldn't have known because I cannot see into the future, so I am not to blame.

At the end of this exercise, LC reported ''I accept the argument's in my head, but not emotionally''. Because of this, a second phase of treatment was employed. LC rehearsed arguments against her feelings of guilt. These are shown in Table 3. These arguments were also written on cue cards and placed in front of LC. A taped session of reliving the murder was then undertaken. At the point where she thought ''It's my fault.'', she was prompted by the question ''And what would you say now?'' to insert the arguments from the cards. The rest of the reliving proceeded as normal.

Table 3. Arguments against guilt written on card

1.	Others share responsibility: government; superpowers; person who killed my uncle; leader of the soldiers; soldiers who support the government
2.	I did not know what would happen to my uncle (we both thought it was safe). Therefore, because I did not know, logically, I am not to blame for his death

LC listened to the tape 15 times and reported a reduction in responsibility to 30% with *associated affect change*. Again, this case can be conceptualized as an activation of the fragmented trauma memory and a cognitive restructuring of its associated negative appraisals. In this way, the obstacle to successful emotional processing was removed. Her nightmares reduced in frequency to approximately one per month and she no longer met diagnostic criteria for PTSD. LC was seen for a total of 20 sessions. Five of these were focused on hotspots. As English was not her first language standard self-report questionnaires were not used. However, over the course of therapy her ratings of ''unhappiness'' reduced from 100% to 20%, and ''I'm responsible'' from 100% to, finally, 10%.

Cognitive restructuring of a peritraumatic hotspot associated with shame and long-standing low self-esteem

NE was a 26-year-old woman who was assaulted in an office over a period of 20 minutes. She had many reexperiencing symptoms and four peritraumatic hotspots were identified. Of these, two were associated with fear, one with anger, and the other with shame and humiliation. The worst of these was a moment when the attacker stood over her just before he stabbed her again.

This image was also her most frequent intrusive memory. At this moment NE reported overwhelming feelings of shame and humiliation. She reported that she felt these emotions at the time of the trauma itself (i.e. peritraumatically). Further questioning elicited the meaning of this moment for NE, which was ''I'm the lowest of the low, I'm bad''.

Repeated reliving (i.e. traditional prolonged exposure) during the sessions and for homework helped reduce distress (on SUDS) surrounding the fearful aspects of the assault but NE continued to experience distress with the hotspot associated with humiliation/shame. Cognitive restructuring of ''I'm bad.'' was attempted in the session outside of reliving (e.g. ''What makes you a bad person in this situation? What would you say to a friend in the same situation?''). This led to little change in her belief and no change in affect. In keeping with the procedure detailed above, cognitive restructuring was attempted whilst holding that hotspot in mind during reliving. This was done both verbally and with imagery manipulations. These too were unsuccessful.

The case was reformulated. NE had held the core belief ''I'm bad'' since her childhood. This core belief led to this peritraumatic hotspot and associated meanings. In addition, it had led to secondary negative appraisals of the attack itself (e.g. ''I was attacked because I am a bad person.''), its sequelae and her symptoms (e.g. ''I'm weak to be upset.''), thus reinforcing the belief. In order to facilitate emotional processing of the hotspot, the negative appraisals needed to be addressed by techniques appropriate for that level of cognition (core beliefs).

Schema focused cognitive therapy techniques were employed (Padesky, 1994). First, the self-prejudice model of core beliefs was introduced (Padesky, 1990). Second, in order to change NE's self-beliefs (and hence her negative appraisals of the traumatic event) it was necessary not simply to challenge the belief developed with evidence to the contrary, but also to build up evidence for an alternative belief (Padesky, 1994). An alternative belief was identified (''I'm a good OK person.'') and the criteria for this specified. Over a period of some months, NE collected data consistent with this belief in a positive data log. This resulted in her rating of ''I'm a good OK person.'' increasing from 5% to 70%. During this time the traumatic event was not the focus of the sessions, and interventions were aimed at VAMs.

NE was continuing to have vivid intrusive memories of the hotspot, associated with shame and the meaning ''I'm bad''. The reliving with cognitive restructuring procedure was employed as outlined above. NE rehearsed the coping statement ''I'm a good OK person and have done hundreds of things that show this''. During the reliving, she held the hotspot (a SAM) vividly in her mind and was guided by the therapist to introduce the new corrective information, which was more consistent with her being a good OK person, at the point at which she felt ashamed. In the session, NE's distress rating reduced from ten to six. On further regular listening to the therapy tape, this reduced to three. The frequency of the intrusive memory reduced from once per day to once every two weeks.

Thus the meaning of the hotspot was successfully cognitively restructured, following cognitive therapy appropriate for the level of cognition associated with the meaning of the hotspot. The use of prolonged exposure alone for NE in the early stages of therapy did not affect this particular reexperiencing symptom, because of the match in meaning between that moment of the event and a long-standing dysfunctional self-belief. It was this longstanding duration and unconditional nature of the belief that necessitated prolonged treatment. NE was seen for a total of 51 sessions. Two were focused on this hotspot after about 20 to

25 focused on schema work. Over the course of therapy scores on self-report questionnaires reduced: from 35 to 8 on the BAI; from 24 to 9 on the BDI; and from 40 to 25 on the Penn.

Cognitive restructuring of a peritraumatic hotspot associated with disgust

CD was a 36-year-old woman who had experienced a sexual assault one month prior to starting therapy. In the initial reliving session, four peritraumatic hotspots were identified. One hotspot was associated with disgust, two were associated were fear, and one with anger. During the traumatic event, CD had woken up to find herself being sexually assaulted. Her attacker fled the room, and CD touched her external genitalia to find them covered in fluid. At this point during the reliving, her facial expression changed to a grimace of disgust, she shuddered, squirmed in her chair and reported feeling disgusted and repulsed. She reported the cognitions ''My hand is soaking wet, I want to clean myself, his germs are on me, I am so disgusted, I am filthy dirty. What will happen if this stuff is in my vagina? I could catch HIV''. After the initial reliving, CD reported that the feelings of disgust were her worst hot spot, and that she reexperienced it ''countless'' times a day. For example, she was unable to wear tight underwear and any genital contact triggered this intrusion.

This disgust hotspot was discussed in a session outside of the reliving. CD reported such intense disgust that she felt out of control. In generally, she highly valued being in control of her feelings. It was therefore important to normalize her reaction. The concept of disgust was explored as a natural and automatic response to her sexual assault (Phillips, Senior, Fahy, & David, 1998). The cognitions associated with her disgust (that the attacker's germs were on her and she could contract HIV) were challenged in the light of new evidence that CD had not known at the time of the assault. Namely, that the forensic investigation had shown that the fluid was saliva, not semen, and that semen had not entered her vagina. Medical information that she would be highly unlikely to contract HIV through saliva on external genitalia was brought into the reliving. A transcript for restructuring the disgust hotspot is provided below.

Therapist: What is happening now?
CD: I am touching my bottom, my hand is soaking wet
Th: How you are feeling right now?
CD: I am extremely disgusted, repulsed. I feel sick (displaying non-verbal expressions of disgust)
Th: How would you rate this feeling on a scale of zero to ten?
CD: Ten.
Th: What is going through your mind right now?
CD: It's disgusting, filthy dirty. His germs are on me.
Th: What do you know now about how you are feeling?
CD: It is normal that I am reacting by feeling so intensely disgusted by a stranger touching my genitals. This is making me feel sick, shudder and grimace.
Th: So, it's normal that you're reacting with intense disgust in this way. What else is going through your mind?
CD: What will happen if this stuff is in my vagina? I could catch HIV off this man.
Th: What do you know now that you didn't then?
CD: The fluid I am feeling is saliva not semen.
Th: Uh huh . . .

CD: It is highly unlikely that I could contract HIV through this man's saliva on my external genitals, even if he was HIV positive.
Th: What are you feeling right now?
CD: The wetness is still disgusting.
Th: Right now, with the event clear in your mind, how disgusted do you feel now between zero and ten?
CD: Seven.

A similar script was repeated three times in the first session of cognitive restructuring within reliving, as well as in the two subsequent sessions. In addition, CD listened to a transcript of the therapy tape, which detailed the entire traumatic experience, between sessions. After this, CD's SUDS rating for this disgust hotspot reduced to three. Following this CD did not report any further re-experiencing symptoms related to this moment. The emotion of disgust has been linked to shame and guilt (Power & Dalgleish, 1997), and simple prolonged exposure could serve to exacerbate, rather than ameliorate, such peritraumatic emotions. Therapy was completed after a total of eight sessions. Over the course of therapy scores on self-report questionnaires reduced: from 36 to 4 on the intrusion subscale of the Impact of Event Scale – Revised (IES-R; Weiss & Marmar, 1977); from 15 to 1 on the avoidance subscale of the IES-R; from 28 to 3 on the hyperarousal subscale of the IES-R; from 12 to 1 on the anxiety subscale of the Hospital Anxiety and Depression Scale (HADS; Snaith & Zigmond, 1994); and from 12 to 0 on the depression subscale of the HADS.

Discussion

In this paper a formalized clinical method has been presented to cognitively restructure peritraumatic emotional hotspots within reliving procedures for PTSD. The first stage is to identify during reliving moments of peak distress and their associated cognitions (meanings). A cognitive-affective script, in an ABC layout, is a useful clinical tool to identify thoughts or feelings that may have been missed during the first relieving procedure. The second stage is to address these cognitions outside of reliving and provide a rationale for using cognitive restructuring within reliving. The third stage is to use the reliving procedure again. The peritraumatic emotional hotspot is held vividly in mind and socratic questioning is used to introduce new information, verbally and/or in imagery, in order to modify the associated cognition(s). The cases presented indicate how such a method may be successfully employed with a range of emotional hotspots not limited to fear.

We postulated that cognitive restructuring would be maximally effective if it is carried out within the reliving procedure for PTSD (Ehlers & Clark, 2000). This is because reliving activates the trauma memory, allowing optimal change of these peritraumatic hotspots (Brewin et al., 1996). This theory has driven our clinical approach, which is described in detail in this paper. Clinically, we have found this method to be very useful; particularly for those people for whom prolonged exposure treatments have previously been unsuccessful. We suggest that this may be due to peritraumatic hotspots that are not associated with fear but with other emotions that do not habituate. For example, Jaycox, Foa and Morral (1998) found that one sub-group of patients receiving exposure therapy did not show habituation, even though they showed high levels of emotional engagement with the trauma material.

Within the framework we have presented, reliving is not simply used to promote habitu-

ation or extinction: it is used as a cognitive assessment technique; to identify peritraumatic hotspots; and as an opportunity for cognitive restructuring. Furthermore, it may be used as a behavioural experiment to test secondary appraisals such as ''I'll go mad if I have to think about it'' (Ehlers & Clark, 2000).

There is some convergence in the clinical literature, with a number of authors suggesting the need to use both reliving and cognitive therapy. Foa and colleagues (e.g. Foa & Kozak, 1986; Foa et al., 1989) argue that there is a need to introduce ''corrective information'' into the ''fear structure'' (i.e. the trauma memory). However, they refer to ''danger information'' rather than to any broader emotional conceptualization. Resick and Schnicke (1993) present a Cognitive Processing Therapy framework that combines reliving and cognitive therapy. They argue that the therapist needs to identify and modify ''stuck points''. These are inadequately processed conflicts between prior schemata and new information, that is, the traumatic event. They state that the therapist needs to ''elicit memories and directly confront conflicts and maladaptive beliefs'' and that ''prolonged exposure activates the memory structure but does not provide direct corrective information regarding misattributions or other maladaptive beliefs'' (pp.17–19). However, they do not distinguish between appraisals made at the time of the trauma and those made afterwards. Stuck points may be peritraumatic hotspots or secondary appraisals. Further, they do not suggest the use of cognitive restructuring at the time of reliving.

Smucker (1997) recognizes the important distinction between primary cognitive processing and secondary cognitive processing. The activation and reworking of imagery is regarded as a ''primary cognitive process'', whereas the linguistic processing of thoughts and feelings about an event is viewed as a ''secondary cognitive process'' (c.f. SAMs and VAMs). ''During imagery work in cognitive therapy, the patient and therapist 'freeze' the imagery from time to time (i.e., put the imagery 'on pause') and linguistically process thoughts and feelings about the imagery being experienced.'' Smucker does not clearly specify which moments are frozen. We aimed to provide this guidance.

There are also some similarities between this cognitive restructuring within reliving and Eye Movement Desensitization and Reprocessing (EMDR; Shapiro, 1995). EMDR also asks the patient to hold aspects of the trauma memory in mind, to identify an accompanying negative cognition, and to ''install'' an alternative positive cognition (see also the use of ''cognitive interweave'' for challenging patients; Shapiro, 1995). Whilst the efficacy of EMDR for PTSD is relatively well established, there is still controversy over how to account for this at a theoretical level.

With respect to our conceptualization of cognitive restructuring within reliving, and the clinical approach presented here, it could be argued that the hotspots identified may not be truly peritraumatic. Admittedly, these trauma narratives are retrospective accounts. However, patients demonstrate little difficulty in distinguishing feelings from the time of the event and those that came after. Furthermore, it is not argued here that the cognitions given during reliving were necessarily those consciously occurring to the patient during the trauma (although they may be). Rather that, in treatment, a verbalized meaning is identified, which is associated with the emotion experienced.

There are some limitations to our approach. If the cognitions attached to the trauma are specific to that event, then cognitive restructuring during exposure is more likely to be successful. If, however, these cognitions reflect more general meanings than the individual holds (e.g. ''I'm weak, I'm worthless.'), then such an approach may be insufficient. If

cognitive restructuring is to occur successfully, then there must be appropriate positive beliefs on which to build and store experiences (Padesky, 1994). In such situations, much more time must be spent on cognitive restructuring prior to any exposure. It may then be easier to address the nature of the trauma memory with reliving and restructuring, as the person has information to include contrary to the negative meanings attached to the intrusions. The third case presented here has shown how this may proceed with some success.

Although there is currently no evidence to support the use of this method over traditional exposure techniques, the added utility of identifying hotspots and applying specific cognitive techniques to these within reliving is an empirical question. We predict that fewer reliving sessions are needed in comparison with prolonged exposure, as this method is based on processing new corrective information and not on habituation and extinction. We also predict greater effect on peritraumatic hotspots will be made with this approach compared to the use of cognitive therapy outside of reliving.

It is beyond the scope of the current paper to expand in detail on approaches to dealing with peritraumatic dissociation. However, this is an important and complex area worthy of significant further investigation. Possible clinical approaches include the ''dosing'' of exposure, together with the use of ''grounding'' techniques, and carefully identifying the emotions and cognitions associated with the moment preceding dissociation in order to restructure their meanings, which may allow further processing and integration of the trauma memory.

Further research is necessary to investigate the ''epidemiology'' of peritraumatic hotspots. This should include the prevalence of such hotspots and the relative proportions of fear-based and non-fear-based hotspots. Further predictions based on our clinical experience are that the longer the duration of the traumatic event, the greater the number of hotspots present; interpersonal traumas such as assault are more commonly associated with non-fear-based hotspots than accidents; disgust is most commonly seen in traumatic events with a sexual element. Of particular interest and importance would be to investigate how well hotspots match particular reexperiencing symptoms, and how these change over the course of treatment.

A further research avenue would be to investigate the relationships between prior beliefs, peritraumatic hotspots and secondary appraisals. Cognitive models would simply that there should be a direct influence from prior beliefs about the self, others and the world. Of particular interest is whether the cognitions and emotions experienced at the time of the trauma have a direct influence on appraisals following the traumatic event. Careful examination of peritraumatic hotspots and secondary appraisals, including the use of standard measures such as Post Traumatic Cognitions Inventory (Foa, Ehlers, Clark, Tolin, & Orsillo, 1999), may help elucidate this.

Conclusion

This paper makes a distinction between peritrauamtic emotions and cognitions and later emotions linked to secondary appraisals. During the reliving procedure, clinicians may usefully identify peritraumatic emotions and their associated cognitions. There is a possibility that, when dealing with PTSD, the natural focus placed on fear, helplessness and horror may lead clinicians to miss or downplay the importance of other peritraumatic emotions and their associated cognitions. These cognitions may be one reason for treatment failures with

prolonged exposure. In order to address peritraumatic cognitions and emotions, cognitive restructuring can be used within the reliving procedure. We have presented a number of cases that have shown how this may successfully be applied. Further research is required to demonstrate the relative effectiveness of this approach in comparison to existing therapeutic strategies. We hope that this paper may be of benefit in providing a standardized format that could be used in such research.

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