Behavioural and Cognitive Psychotherapy, 2001, 29, 367–372
Cambridge University Press. Printed in the United Kingdom

Brief Clinical Reports

PERITRAUMATIC EMOTIONAL ''HOT SPOTS'' IN MEMORY

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Abstract. Individuals with posttraumatic stress disorder (PTSD) frequently report periods of intense emotional distress (''hot spots'') when asked to describe their traumatic experience in detail. ''Primary'' emotions felt during the trauma (i.e., peri-traumatically) are believed to consist mainly of fear, helplessness and horror. We report a preliminary investigation into the emotions associated with these hot spots. Patients with PTSD described a wide variety of emotions such as anger, humiliation and guilt present at the time of the trauma. The peri-traumatic cognitions associated with these emotions are also detailed.

Keywords: Posttraumatic stress disorder, emotional ''hot spots''.

Introduction

In discussing the treatment of posttraumatic stress disorder (PTSD), several authors have identified the importance of ''hot spots'' in the memory of the traumatic events (Ehlers & Clark, 2000; Richards & Lovell, 1999). This term is used to refer to the specific parts of the trauma memory that cause high levels of emotional distress, that may be difficult to recall deliberately to mind, and that are associated with intense reliving of the trauma. ''Peri-traumatic'' or primary emotions, which are reported as occurring during the traumatic incident, are not thought to require extensive conscious appraisal (although they may be

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https://doi.org/10.1017/S1352465801003095 Published online by Cambridge University Press

accompanied by fleeting thoughts). These emotions are viewed as a direct response to overwhelming circumstances. Consistent with much of current emotion theory (e.g., Ekman, 1999), they have been distinguished from secondary emotions arising from more elaborate and cognitive appraisals made after the event (Brewin, Dalgleish, & Joseph, 1996; Ehlers & Clark, 2000).

Richards and Lovell (1999) implied that hot spots are moments of peak fear that need further exposure in order to ensure habituation. In the American Psychiatric Association's (DSM-IV: APA, 1994) description of PTSD, criterion A2 specifies that the person must have experienced intense fear, helplessness or horror during the traumatic event to qualify for a diagnosis. These three emotions would therefore be predicted to predominate during hot spots. However, although these emotions are certainly very common, a number of reports suggest PTSD may develop in their absence. For example, in a minority of cases patients report PTSD associated with intense levels of other emotions, such as shame and anger (Brewin, Andrews, & Rose, 2000).

To date there has been little research into peri-traumatic emotions, even though they may be of considerable therapeutic significance. For example, many treatments for PTSD are based on the principle of habituation to reduce excessive levels of fear. However, if other emotions exist alongside or instead of fear, alternative cognitive strategies may be more appropriate. Ehlers and Clark (2000) argued that the predominant emotions present in hot spots are a clue to important cognitive themes, and they suggested that these moments should be explored further to identify meanings.

Case reports

We report a case series of eight patients who had all been referred to a specialist outpatient service for help with traumatic stress symptoms. On clinical assessment using the Clinician Administered PTSD Scale (Blake et al., 1990), all met DSM-IV criteria for PTSD. The following cases are not a consecutive series, but have been selected from the first two authors' clinical caseloads over the last 9 months to illustrate the potential variety of peri-traumatic emotions identified. All patients spoke English as their first language. Brief demographic and trauma-related information can be found in Table 1.

As part of the clinical intervention of exposure/reliving, patients were guided to describe the trauma in the first person and in the present tense, as if it were happening now, giving as much detail as possible including visual, auditory, physical, emotional and cognitive information. During this procedure patients were regularly asked to rate the levels of their emotions experienced on a subjective units of distress scale (SUDS) between 0 and 10. Patients were also asked directly what the worst moments of the event were. The hot spots reported here were those moments of highest affect during the reliving, not just those associated with fear. Prompts (e.g., ''What is going through your mind now?''; ''What does that mean to you?'') were used to identify the associated cognitions and meanings. Patients were asked whether these emotions and cognitions actually occurred at the time of the trauma or were later appraisals. Later appraisals associated with high affect for these patients are not reported. The hot spots described below were identified during the first three reliving treatment sessions.

Table 1 reports the variety of peri-traumatic emotional hot spots and the cognitions associated with them. All patients reported experiencing spontaneous episodes of intense reliving

https://doi.org/10.1017/S1352465801003095 Published online by Cambridge University Press

https://doi.org/10.1017/S1352465801003095 Published online by Cambridge University Press

Table 1. Peritraumatic emotional ''hot spots'' and associated cognitions

Sex	Age	Event	Time since trauma	Situation	Cognition	Emotion	SUDS
F	26	Physical assault	2 years	Hit on head; tools put on desk	He is going to kill me	Fear	9
				Telling her she is bad	How dare you do this to me	Anger	9
				Assailant towering over her	I'm the lowest of the low	Humiliation	10
					He has duped me	Sadness	10
					I should've known	Guilt/self-blame	10
				Being strangled	I'm going to die	Fear	9
M	35	Motor vehicle accident	2 months	See lorry headlights	It's going to hit me	Fear, helplessness	9
				Being pushed over road	I'll be crushed	Fear	9
				Car stationary, smell petrol	It's going to explode	Fear	10
				Bus and car drive past	They ought to stop	Anger	8
					Nobody cares	Sadness	9
				Feel sleepy after	If I fall asleep now I could die from internal injuries	Fear	8
M	45	Physical assault	3 years	Punched and kicked, hears ''chiv him'' (''knife him'')	He's going to stab me, I'll be killed	Fear	10
				On floor, unable to defend self	I'm weak	Shame, Embarrassment	10
F	45	Identifying son's dead body	8 months	See son's body in morgue	He was horribly murdered	Horror	10
					He's really dead	Sadness	10

https://doi.org/10.1017/S1352465801003095 Published online by Cambridge University Press

Table 1. *Continued*

F	31	Sexual assault	2 months	Grabbed hold of by shoulders	What's he doing	Fear	8
				Exposed himself to her	He's going to rape me	Fear, disgust	10
M	60	Motor vehicle accident	3 months	Impact of vehicles colliding	I'm dead	Fear	8
				Police telling him ''it's not your fault'' whilst still in van	Someone's been hurt, I'm to blame	Guilt	8
				Waiting to be cut out of the van	The fuel tank is going to explode	Fear	8
F	33	Physical assault	2 months	Hands pulling at bag	They're trying to pull me over	Fear	8
				Fallen down on the ground	I've lost, they've won, I'm stupid	Humiliation	10
				Kicked in stomach	They're taking away my chance to have children	Sadness	10
				Assailants walking away slowly	They can't even be bothered to run	''Degraded''	10
F	36	Sexual assault	1 month	Waking up to feel genitals being touched	What is going on? What is he doing?	Fear	10
				Partner running after assailant	He'll be killed	Fear	9
				Check own genitals and feel hand is soaking wet	What if I catch something off this man?	Disgust, repulsion	10
				Waiting for police	I could kill him	Anger	10

(''flashbacks'') corresponding to these hot spots and rated them as at least 8 on the SUDS scale. It is notable that although peri-traumatic hot spots involving either fear or horror were identified in every case, they were accompanied by others where the emotional responses were reported by the patient as variously involving sadness, shame, guilt, anger and disgust. Whereas fear was characteristically associated with cognitions such as ''I'm going to die/be killed'', the other emotions reported were associated with a more idiosyncratic range of cognitions. Nevertheless, these cognitions were logically linked with their corresponding emotions, as suggested by Beck's content specificity hypothesis.

Discussion

The frequency of hot spots not involving fear, helplessness or horror needs to be established with a larger number of patients. Nevertheless the findings have theoretical and practical implications. The dual representation theory of PTSD proposed that primary emotions (consisting mainly of fear) are encoded during the traumatic event by a lower-level memory system (''situationally accessible memory'') that supports subsequent reliving experiences, whereas secondary emotions such as guilt are the product of more extensive post-event cognitive appraisal and are encoded into ordinary autobiographical memory (''verbally accessible memory'': Brewin et al., 1996). The observations reported here indicate that primary emotions are more varied than this suggests. Events of longer duration may permit more extensive cognitive appraisals and their resultant emotions to happen peri-traumatically. The suggestion we put forward is that any peri-traumatic emotion, however much conscious appraisal it requires, is available to be encoded into situationally accessible memory and to support later reliving experiences, provided it occurs in a context of at least moderate fear.

Clinical trials of cognitive-behaviour therapies for PTSD indicate that there is room for improvement in their outcomes. For example, Marks, Lovell, Noshirvani, Livanou and Thrasher (1998) found that only 32% of patients receiving cognitive therapy, and 53% of patients receiving exposure reached their defined ''high end state functioning''. 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. We suggest two possible explanations for these limited effects. One is that clinicians focusing primarily on fear using exposure techniques may miss or downplay the importance of peri-traumatic hot spots that are associated not with fear but with other emotions. These emotions may not diminish simply as a result of being repeatedly and intensely relived.

The second explanation is that traditional cognitive restructuring in a non-reliving therapy session, whilst helpful for secondary negative appraisals, may not always affect emotions and cognitions that have been encoded into situationally accessible memory. In this instance it is possible that therapists may need to use either verbal or imagery-based cognitive restructuring within the reliving procedure for maximal effect. Further investigation of how to modify specific cognitions and emotions appears to be warranted. We suggest that it will be valuable to identify the range of different emotions that are present, to distinguish those that occur within and outside peritraumatic hot spots, and to consider whether to deliver cognitive restructuring within or outside of a reliving session.

https://doi.org/10.1017/S1352465801003095 Published online by Cambridge University Press

Acknowledgements

We would like to thank Kerry Young, Debee Lee and Peter Scragg for discussions and comments on an earlier draft. We also thank anonymous reviewers for comments.

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