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Clinical Section

Cognitive Factors in Persistent versus Recovered Post-Traumatic Stress Disorder after Physical or Sexual Assault: A Pilot Study

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Cognitive models have linked individual differences in the appraisal of traumatic events and their sequelae to the persistence of post-traumatic stress disorder (PTSD). A pilot study investigated this proposal with victims of assault. Eleven assault victims suffering from persistent PTSD and 9 victims who had recovered from PTSD were interviewed retrospectively and compared on potentially relevant cognitive factors. Groups were comparable in terms of characteristics of the assault, gender, age, and initial PTSD severity. Participants with persistent PTSD were less likely than those who had recovered to have engaged in mental planning during the assault and more likely to have experienced mental defeat, and to indicate negative appraisals of their actions during the assault, of others' reactions after the assault, and of their initial PTSD symptoms. They were also more likely to indicate global negative beliefs concerning their perception of themselves, their world or their future. These cognitive factors may maintain PTSD symptoms either directly or by motivating the individual to engage in behaviour that prevents change.

Introduction

It is known that post-traumatic stress disorder (PTSD) is a common psychological consequence of assault (e.g. Kilpatrick et al., 1989; Rothbaum, Foa, Riggs, Murdock, & Walsh, 1992). Indeed, initial post-traumatic reactions may reflect a normal response to the traumatic experience of assault, from which the majority of victims go on to recover. In their longitudinal study of 64 female rape victims, Rothbaum et al. (1992) found that 94% of the women met symptomatic criteria for PTSD one week after the assault; this fell to 65% four weeks after the assault, and 47% continued to meet criteria three months after the assault. This indicates that although many victims recover after a relatively short period of time, a substantial

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proportion will suffer from persisting PTSD. Essentially the same pattern of results was found for victims of non-sexual assault (Riggs, Rothbaum, & Foa, 1995). These results illustrate the importance of investigating the factors involved in persistent post-traumatic reactions.

Cognitive models of PTSD suggest that individual differences in the appraisal of traumatic events and their sequelae may be particularly important in determining the persistence of the disorder. The aim of this pilot study was to investigate this hypothesis by identifying the cognitive factors that distinguished assault victims suffering from persistent PTSD from those who had recovered from PTSD after a criminal assault.

Several cognitive factors were considered potentially relevant. First, thoughts that occur *during* the traumatic event may contribute to the persistence of post-traumatic reactions. An initial suggestion along these lines was made by Ehlers et al. (1996). They identified a bipolar construct, mental planning versus mental defeat, relating to the individual's thoughts during the assault. Mental planning refers to the victim's attempts to think of ways to escape or protect themselves physically or emotionally during the assault. In contrast, mental defeat refers to instances where the victim felt that he/she had mentally given up during the assault. Preliminary support for the importance of the mental planning/defeat distinction was obtained by Ehlers et al. who found that good outcome following imaginal exposure therapy was associated with mental planning during rape, and inferior outcome was associated with lack of mental planning or with mental defeat during the rape. In light of this preliminary evidence from a treatment study, the current investigation aimed to gain additional data regarding the association between mental defeat/mental planning and the persistence of/recovery from PTSD reactions.

Second, individuals' subsequent appraisal of the way they behaved and felt during the assault may be important. Some indirect evidence that negative appraisals of actions are associated with poorer outcome comes from studies looking at internal attributions for negative outcomes and studies addressing self blame. In two studies of survivors of shipping disasters internal attributions for negative events involving the individual (assessed within 6 months of the disaster), were significantly correlated with depression and intrusions up to 19 months post-disaster (Joseph, Brewin, Yule, & Williams, 1991, 1993). With respect to self blame Frazier and Schauben (1994) found that post-rape psychopathology was positively associated with blaming one's actions, and with blaming aspects of one's personality. In addition, Riggs, Foa, Rothbaum and Murdock (1991) found that assault-related guilt (assessed by asking "How responsible do you feel for the assault?") was related to initial PTSD severity in their prospective study with victims of criminal assault. The current study sought to provide further evidence regarding the association between "negative appraisals of actions" and the persistence of PTSD. It was also postulated that participants who had experienced emotions which they interpreted as uncontrollable or unacceptable may be more likely to suffer from persistent post-traumatic reactions. This proposal was based on anecdotal evidence but had not been explored systematically.

A third potential factor determining long-term outcome is individuals' appraisals

of the way in which other people responded to them in the aftermath of the assault. Several investigators have reported data suggesting that those who perceive that other people have failed to react in a positive or supportive manner, report greater post-traumatic psychopathology (e.g. Keane, Scott, Chavoya, Lamparski, & Fairbank, 1985—in Vietnam veterans; Joseph, Andrews, Williams, & Yule, 1992—in victims of disaster; Riggs et al., 1991—in victims of criminal assault). In addition, two studies have found that reports of negative social interaction following sexual assault were associated with poor adjustment (Davis, Brickman, & Baker, 1991; Ulman, 1995). Therefore it was decided, in the current study, to ask about how the victim perceived other people's reactions following the assault and, in particular, to ask about negative appraisals of the way in which others responded following the assault.

A fourth potential factor is the victim's interpretation of the PTSD symptoms themselves. Foa and Riggs (1993) postulated that appraisals of symptoms as signs of incompetence or inadequacy may act to intensify PTSD. Ehlers and Steil (1995) proposed, with respect to the maintenance of symptoms of intrusion, that the "negative idiosyncratic meaning of intrusions" acts to increase distress and to make it more likely that the individual will engage in strategies to control the intrusions. These strategies may then act to maintain or even to exacerbate intrusive symptoms. They conducted two preliminary studies with victims of road traffic accidents, finding significant correlations between catastrophic interpretations of intrusions, and distress, avoidance and PTSD severity. These correlations could not be explained by the frequency of the intrusions or the severity of the trauma. In a prospective study, catastrophic interpretations of intrusive recollections assessed shortly after the accident predicted PTSD symptomatology at six months (Steil, Frommberger, & Ehlers, in preparation). Negative interpretations of symptoms also play a central, maintaining role in panic disorder (Clark, 1986; Ehlers, Margraf, & Roth, 1988) and it is of interest to note that individuals with PTSD have Anxiety Sensitivity Index scores that approach those of panic patients (Taylor, Koch, & McNally, 1992). The present investigation attempted to collect additional data with respect to this proposal by investigating the role of negative appraisals of PTSD symptomatology in the persistence of PTSD.

A final potential factor is global negative beliefs that the individual may hold about themselves, their world, and their future following the assault. There has been considerable discussion of the role of shattering (Janoff-Bulman & Frieze, 1983) and confirmation (Foa & Riggs, 1993) of pre-existing beliefs in the development of PTSD. The former refers to the proposal that a traumatic event presents the individual with information that is inconsistent with pre-existing beliefs. This is said to shatter core assumptions: such as the "world is benevolent", the "world is meaningful", and the "self is worthy". Confirmation of pre-existing beliefs refers to the suggestion of Foa and Riggs (1993) that, in some cases, a traumatic event presents the individual with information that acts to confirm and reinforce pre-existing *negative* beliefs about the safety of the world and the worthiness of the self. However, only a small amount of empirical research has been conducted exploring

the association between PTSD and global negative beliefs (e.g. Resick, Schnicke, & Markway, 1991; Wenninger & Ehlers, 1995). It was therefore considered important to investigate such global negative beliefs in persistent PTSD.

Method

Design

The cognitive factors outlined above were assessed using a semi-structured interview administered to a group of assault victims suffering from persistent PTSD and to another group who had recovered from PTSD. Participants had suffered either a physical or sexual assault as adults. All participants met diagnostic criteria for PTSD in the month after the assault according to retrospective self-report ratings. At the time of the interview, the persistent PTSD group continued to suffer from PTSD, whilst the recovered PTSD group now failed to meet diagnostic criteria.

Participants

Twenty participants were included in the study. Recruitment was by adverts in local newspapers, posters in public places, and contacts with local "Victim Support" and head injury services. One participant was recruited after referral for therapy. Seven had experienced completed rape; two had experienced attempted rape; and eleven had experienced physical assault. Persistent PTSD and recovered PTSD groups were identified on the basis of scores on two versions of the self-report version of the PTSD symptom scale (PSS-SR; Foa, Riggs, Dancu, & Rothbaum, 1993). The first version obtained ratings of current symptomatology, the second version obtained retrospective ratings of symptoms immediately after the assault.

The persistent PTSD group (n = 11, 10 women and 1 man) consisted of individuals who met DSM-III-R diagnostic criteria for PTSD (American Psychiatric Association, 1987), as determined by ratings on the PSS-SR, in the month after the assault and continued to meet diagnostic criteria at the time of the interview. An exception to this was an individual who initially experienced amnesia for the assault and developed PTSD immediately after the return of her memories, which was six years prior to the interview.

The recovered PTSD group (n = 9, 5 women and 4 men) also met diagnostic criteria for PTSD in the month after the assault, but *did not* meet diagnostic criteria at the time of the interview.

Measures

PTSD symptom scale: self-report version (PSS-SR: Foa et al., 1993). This scale consists of 17 items corresponding to DSM-III-R criteria for PTSD (American Psychiatric Association, 1987). The PSS-SR has been demonstrated to have acceptable levels of reliability and validity (Foa et al., 1993) and provides a measure of the severity of the symptoms on a 4 point frequency scale.

Semi-structured interview. The interview was developed for the purpose of gaining preliminary data regarding the role of cognitive variables in the maintenance of PTSD. It covered the following areas. Initially, participants were asked to describe

what happened at the time of the assault. They were then asked about their thoughts, emotions and actions during the assault, and about what these reactions meant to them. The interview then moved on to look at the immediate consequences of the assault and how other people reacted. Next participants were asked about the symptoms that they experienced after the assault and how they interpreted these symptoms. Finally, the global impact of the assault was assessed, in terms of the way it had affected the individuals' beliefs about themselves, their world, their future, and other people. Questions were open ended and were asked in a flexible order. When necessary, the interviewer used non-verbal prompts and paraphrasing to encourage the subject to elaborate on their thoughts, feelings and interpretations.

Participants' responses were categorized in terms of presence or absence of each of the cognitive variables according to the following guidelines. Individuals were considered to have experienced *mental defeat during the assault* if there was evidence that they felt they mentally gave up, or felt they were entirely at the mercy of the situation, with absolutely no choice of their own. Mental defeat is *not* synonymous with behavioural defeat. For instance, an individual may experience behavioural defeat (e.g. stop struggling/submit) but not be mentally defeated (e.g. if using submission deliberately to minimize further risk or to bring the assault to an end). In contrast, *mental planning during the assault* was coded as present if there was any evidence that the person had been thinking of ways in which they might escape or somehow influence the assailant, or had been thinking of ways in which they might protect themselves physically or psychologically, regardless of whether the plans had been successful or not. *Negative appraisals of one's actions during the assault* were considered to be present if there was evidence that individuals thought there were things they should have done differently during the assault, which were *not* attributed solely to the benefit of hindsight. *Negative appraisal of other's responses* was coded as present if there was evidence that an individual perceived that other people had been unhelpful, or had made things worse following the assault. It was *not* coded as present if it was clear that the individual discounted other people's negative reactions as being unimportant or irrelevant. *Negative appraisal of PTSD symptoms* was coded as present if individuals reported that they believed the symptoms meant they were losing their mind or having a nervous breakdown; that they would never recover; or that the symptoms would ruin their life. Finally, *global negative beliefs* referred to statements made by subjects regarding the overall impact that the assault had had on their perception of themselves; on their beliefs about other people; on beliefs about their safety, and on beliefs about their future.

Procedure

Initially, subjects were asked to complete the two versions of the PSS-SR, the first dealing with current symptoms, the second dealing with symptoms in the month after the assault. Next, the semi-structured interview was administered. The questionnaires and interview took 1.5 to 2.5 hours. All interviews were conducted by a female investigator (ED). Interviews were audiotaped and detailed summaries were made from the tapes. Ratings, according to the above guidelines, were agreed by

the three investigators, who reviewed all the summaries. As this was a pilot study, the interviews and ratings were non-blind and measures of inter-rater reliability are not available.

Statistical analysis

For scaled variables *t*-tests were used to compare the two groups. Some variables failed Levine's test for equality of variance. For these variables, separate variance *t*-tests were used. Fisher's exact test was used for categorical variables. Given the small sample size and that every hypothesis was unidirectional, all Fisher's tests were one-tailed.

Results

Group characteristics

Means and standard deviations are shown in Table 1. Immediately after the assault the two groups were equivalent in the mean severity of PTSD symptoms. At the time of the interview the recovered group had a significantly lower PSS score ($t(18) = -7.22$, $p = .000$). Characteristics of the assault were similar in the two groups. In particular, the groups did not differ in: type of assault (physical vs sexual); relationship to the assailant (known vs unknown); or presence of a weapon. In addition, the groups did not differ in sex, age at interview, or age at assault. A significantly longer period of time had elapsed since the assault in the persistent group ($t(12.0) = -3.13$, $p = .009$), emphasizing the chronicity of their symptoms.

TABLE 1. Group characteristics: means and standard deviations (in parentheses)

Variable	Persistent	Recovered
PSS-SR immediately after assault	38.4 (6.4)	33.7 (9.9)
PSS-SR at interview	26.9 (7.3)	6.9 (4.3)
Age at interview (years)	38.8 (13.6)	37.4 (9.1)
Age at assault (years)	30.5 (12.9)	35.3 (8.7)
Time since assault (years)	8.2 (6.1)	2.2 (1.8)

Cognitive variables

The results for cognitive variables are presented in Table 2. Three participants reported that their physical assault was so brief that they had little time to think, plan, or act. For these participants, it was not possible to code the presence or absence of mental planning/defeat or of negative appraisal of actions.

Significant differences were found for all the variables except negative appraisals of emotions during the assault. This area could not be analysed as insufficient examples of appraisals of emotions were generated in the interview.

Mental defeat during the assault. The persistent group was significantly more likely to report having experienced mental defeat than the recovered group ($p = .04$). For example, one rape victim felt she "let it happen" and described her submission as

TABLE 2. Cognitive variables distinguishing persistent and transient PTSD

Variable	Persistent *N* (%)	Recovered (*N* (%)
Mental defeat	5[a] (50)	0[b] (0)
Mental planning	3[a] (30)	7[b] (100)
Negative appraisal of actions	6[a] (60)	1 (11)
Negative appraisal of others' reactions	9 (82)	3 (33)
Negative appraisal of symptoms	9 (82)	1 (11)
Global negative appraisals	8 (73)	1 (11)

[a]$n = 10$, [b]$n = 7$

"almost permission". Another felt as if the assailant was "completely in control" and that all the strength had "poured out" of her. Mental defeat was also associated with *automatic* detachment during the assault. One physical assault victim interpreted her detachment as "copping out", and was so ashamed of this that she had not told anyone else about the fact that she had detached. This may be contrasted with *deliberate* detachment which was used as a coping strategy and which seemed to generate positive appraisals for the recovered group.

Mental planning during the assault. The persistent group was significantly less likely to have engaged in mental planning during the assault than the recovered group ($p = .006$). The following examples illustrate the kind of mental planning reported by the recovered group. One rape victim described how she was "... desperately trying to find ways to stop him (the assailant) doing what he was intent upon doing". Other cases reported trying to think of how to escape, or to attract the attention of people close by; to think of ways to protect those with them at the time of the assault; or of things that might help to convict the assailant. Others engaged in attempts to protect themselves mentally by repeating phrases such as "I am going to get through" or by focusing on things in the room in order to *deliberately* detach from what was happening.

Negative appraisals of one's own actions during the assault. The persistent group was significantly more likely to report such negative appraisals than the recovered group ($p = .04$). To illustrate, one subject reported an ongoing feeling of guilt because he felt that he should have reacted faster in order to help a friend, who later died after the assault. Another subject described her actions, before and during the assault, as a "series of regrets". In other cases subjects ruminated about how the assault could have been prevented "if only ... they had acted differently.

Negative appraisal of the way other people behaved after the assault. The persistent group was more likely to report such negative appraisals than the recovered group ($p = .04$). The devastating impact that other people's responses can have on recovery after an assault was illustrated by the following case. In this situation the friends and acquaintances tried to help the assailant to overcome the difficulties that lead him to perpetrate the assault, rather than to support the victim herself. She viewed these reactions as being "... almost as bad as the attack itself, if I hadn't had that, I think I would have been over this in months". It is important to note that our

coding scheme focused on appraisal of other people's reactions rather than on the experience of negative reactions per se. For example, one subject in the recovered group had clearly experienced negative reactions from her relatives, but attributed these responses to the fact that these relatives were dealing with serious difficulties of their own. Another subject reported that, although other people were sympathetic, she interpreted this to mean that they saw her as a "victim" and therefore to be "weak and incapable". Lastly, one subject's expectation of negative responses prevented her from confiding in anyone until she reached crisis point nearly 17 years later. She was convinced that people wouldn't believe her, or that they would see her as "disgusting and revolting".

Negative appraisals of initial PTSD symptoms. The persistent group was significantly more likely to report negative appraisals of PTSD symptoms than the recovered group ($p = .003$). For example, assault related thoughts and feelings were particularly distressing for one subject who said, "... I thought I was going crazy to be honest ... I really thought I was losing my mind. It was just a feeling of weakness and being unable to cope." Other subjects were distressed by the fear of the symptoms returning. One subject had made considerable improvements in her level of functioning since her experience of assault. However, she continued to suppress both her anger and thoughts of assault, because she was afraid that otherwise the symptoms would permanently return. One subject was worried about *not* having certain symptoms, such as nightmares, fearing that this meant that the assault had not upset her enough and, therefore, that she deserved it.

Global negative appraisals.. The persistent group was significantly more likely to report global negative appraisals about the assault and its aftermath than the recovered group ($p = .009$). Statements made by the subjects about their lives and beliefs before the assault suggested that these negative appraisals fell into both the categories of shattered beliefs and confirmed beliefs. The way in which beliefs were shattered in the persistent group can most clearly be illustrated in the following example. In this case, the subject perceived her reaction, both during and after her experience of rape, to be "weak and pathetic". She reported that she had previously thought of herself as highly confident, and now felt disappointed in herself. In addition, she noted that before the assault she had never even contemplated that "... the world could be anything but kind to her" which she now thought of as "arrogant and naive". The rape had therefore resulted in negative beliefs about both her pre- and post-rape personality. An example of confirmation of pre-existing negative beliefs was shown by a subject who had experienced child abuse before being raped as an adult. This had set up a suspicion that she may have been abused because of "something about her as a person", a belief which was confirmed as a result of the later assault. She described the rape in the following way ".. it was impersonal, he didn't want to know my name, he didn't want to know anything—but it was personal, it was me that he chose, it was me". Lastly, a number of subjects reported that they felt there had been permanent negative changes as a result of the assault. One subject described that she wondered if she would "ever get over it", another believed she would never form another intimate relationship.

Discussion

The results of this pilot study are consistent with the overall hypothesis that chronic PTSD is associated with negative appraisal of traumatic events and their sequelae. Participants with persistent PTSD were more likely to report mental defeat and less likely to report mental planning during the assault than participants who had recovered from PTSD. Persistent PTSD was also more likely to be associated with negative appraisals of one's actions during the assault, of others' responses after the assault, and of the initial PTSD symptoms. In addition, participants with persistent PTSD were more likely to indicate that the assault had generated global negative beliefs about themselves, other people, and/or their future.

Although patients were asked to describe their cognitions at the time of the assault and in its immediate aftermath, we cannot be sure that all the negative cognitions detailed in this paper relate to that period. It is possible that in some cases their recollection may have changed in the course of the disorder and, as a consequence, some negative cognitions may not have emerged until later. This is an important issue for future research. However, in either case it seems likely that the cognitions reported in the persistent group are likely to be involved in maintaining the disorder, and thus may profitably be addressed in treatment. Ways in which these cognitions may contribute to the maintenance of PTSD are outlined below.

There are several ways in which mental defeat might contribute to persistence and mental planning might contribute to recovery. First, an assault which is coded as an instance of with mental defeat is likely to be perceived by the victim as more severe. This is in line with a substantial literature indicating that perceived uncontrollability is a crucial variable in determining the aversiveness of a negative event (e.g. Foa, Zinbarg, & Rothbaum, 1992; Foa, Steketee, & Rothbaum, 1989; Mineka, 1985). It is interesting to note here that previous research as well as DSM-IV emphasize the role of perceived threat to physical integrity in the development of PTSD. The two groups were equated in terms of type of assault and presence of a weapon. Mental defeat, which relates to psychological integrity, therefore explained additional variance. Second, it is generally agreed that it is important to repeatedly go over a traumatic event in one's mind in order to place it in context and see it as a single, time-limited, past event that does not necessarily have global implications for oneself and one's future. Unfortunately, in cases of mental defeat this type of reliving may be less effective and possibly retraumatizing because the person is repeatedly reminded of his or her inability to cope. In contrast, individuals who evidenced considerable mental planning are likely to find reliving an affirming experience as it reminds them that they have inner resources for dealing with future adverse events. This explanation is in line with Ehlers et al.'s (in press) finding that good outcome following imaginal exposure therapy was associated with mental planning during rape, and inferior outcome was associated with lack of mental planning or mental defeat.

Negative appraisal of one's own actions during the assault may be related to persistent PTSD by producing a sense of ongoing threat. Many of the symptoms of PTSD are anxiety symptoms. Traditionally, anxiety is seen as a response to perceived

future danger. However, in PTSD the traumatic event is in the past. One way of resolving this apparent paradox is to propose that PTSD symptoms are experienced if the individual concludes that because of the traumatic event there is a current threat to themselves. This threat can either be external (e.g., "I will be assaulted again") or internal (e.g., "Maybe I have secret sexual desires which are repulsive"). Negative appraisal of one's actions during the assault could produce either type of threat. For example, individuals who believe that the assault happened because they made a bad decision may lose confidence in their ability to organize their lives to minimize the chance of future assaults. As a consequence, they are likely to feel that nowhere is safe. Similarly, an individual who experienced sexual arousal during a protracted rape may blame herself and fear that the fact that she became aroused indicates that she has repulsive sexual desires, a concept which severely threatens her view of herself. Second, negative appraisal of one's actions during the assault may lead to attempts at "mental repair" in which the individual ruminates about ways in which he/she may have prevented or alleviated the assault "if only...". Such rumination may focus the individual away from what actually happened towards what might have happened. This could prevent them from accepting the assault and from putting it in the past, which might act to maintain the sense of ongoing threat. Rumination has been postulated to be one of the cognitive strategies that could be used to avoid distressing imagery and which prevents emotional processing of the traumatic event (Ehlers & Steil, 1995).

The appraisal of other people's responses may be directly associated with some of the PTSD symptoms, especially alienation from others and avoidance of social situations. These appraisals can become so prominent that the individual becomes preoccupied with the feelings related to others' responses, i.e. anger, guilt, or shame. The preoccupation with these feelings and dwelling on the way other people have behaved seems to impede acceptance of the trauma and emotional processing (Ehlers & Steil, 1995), probably by preventing therapeutic reliving of the trauma, whether in the natural course of the disorder (Riggs et al., 1991; Riggs, Dancu, Gershuny, Greenberg, & Foa, 1992) or in treatment (Ehlers et al., in press; Foa, Riggs, Massie, & Yarczower, 1995; Vaughan & Tarrier, 1992). Furthermore, perceived negative responses can contribute to global negative beliefs about oneself (e.g., one's own worthiness) or one's social world (e.g., trust, intimacy) (see below). In addition, negative interpretations of positive responses from others (i.e. perceiving that sympathetic responses mean people see you as weak) may preclude individuals from obtaining information that could disconfirm negative global beliefs.

Negative appraisals of initial PTSD symptoms may, as Ehlers and Steil (1995) proposed, increase the individual's sense of ongoing threat and make it more likely for the individual to engage in strategies to control the symptoms (e.g., thought suppression, safety behaviours, avoidance). These strategies may maintain or even exacerbate the symptoms either directly (e.g., thought suppression may lead to paradoxical increments in frequency of intrusive thoughts, attempts to control sleep by behaviour or medication may aggravate sleep disturbance) or indirectly by preventing change in the idiosyncratic meaning the symptoms and/or trauma have

for the patient. For example, a patient who interprets his/her severe physiological arousal to reminders of the trauma as meaning "I am going crazy" may develop extensive avoidance of all possible reminders, which can thus prevent him/her from experiencing that he/she can confront reminders without going crazy. A patient who interprets his/her feeling alienated from others as evidence for his belief that "The assault has permanently destroyed my trust in others" may withdraw from social contacts and thus decrease the likelihood of positive experiences with other people that could change this belief.

Individuals experiencing persistent PTSD were more likely to report negative global appraisals of themselves, their social network, their safety and their future. These beliefs often seemed to reflect shattering or confirmation of pre-assault beliefs. Some of the beliefs arose from categories described above while others were based on a more general assessment of why the assault occurred and what it means for the persons' view of themselves and their future. It is possible to see a number of fairly straight forward links between such beliefs and the maintenance of PTSD symptoms. Beliefs such as "Nowhere is safe", "I could not cope if it happened again" are likely to produce hypervigilance, enhanced startle responses, and a lack of planning for the future. Beliefs reflecting a sense of permanent damage such as "I'll never be the same again", "I am just an object", and "I am dead inside" are likely to contribute to diminished interest, feelings of detachment or estrangement from others, and a sense of foreshortened future. Beliefs concerned with negative appraisal of one's personality may contribute to both intrusions and excessive avoidance of reminders. For example, individuals who are concerned that the assault, what happened during it, and/or how they behaved afterwards may mean they are weak, worthless or deviant may search their memory for some piece of evidence to dispute this conclusion. This search may activate intrusions and cause the individual to run the risk of focusing on information that seems to them to confirm, rather than disconfirm, their worst fears about themselves (i.e. focusing on the fact that they didn't scream). Alternatively, they may go out of their way to avoid reminders because they are afraid that thinking about the event will confirm their fears about themselves.

In summary, the present study identified a series of cognitive factors that distinguished between cases of persistent and recovered PTSD following similarly severe events. It is plausible that these factors may play a role in the persistence of PTSD. However, the retrospective nature of the study and the use of non-blind ratings means that the findings must be viewed as promising rather than definitive. In particular, it is not possible to exclude the possibility that some of the cognitive differences may be a consequence rather than a cause of persistence. A more comprehensive, prospective study investigating the variables identified in this pilot study would address this issue and is now underway.

References

American Psychiatric Association (1987). *Diagnostic and statistical manual of mental disorders* (3rd rev. ed.). Washington, DC: APA.

CLARK, D.M. (1986). A cognitive approach to panic disorder. *Behaviour Research and Therapy, 24*, 461–470.

DAVIS, R.C., BRICKMAN, E.R., & BAKER, T. (1991). Effects of supportive and unsupportive responses of others to rape victims: Effects of current victim adjustment. *American Journal of Community Psychology, 19*, 443–451.

EHLERS, A., MARGRAF, J., & ROTH, W.T. (1988). Selective information processing, interoception, and panic attacks. In I. Hand & H.U. Wittchen (Eds.), *Panic and Phobias II*, New York: Springer-Verlag.

EHLERS, A. & STEIL, R. (1995). Maintenance of intrusive memories in posttraumatic stress disorder: A cognitive approach. *Behavioural and Cognitive Psychotherapy, 23*, 217–249.

EHLERS, A., CLARK, D.M., WINTON, E.C., JAYCOX, L., Meadows, M., & Foa, E.B. (in press). Predicting response to exposure treatment for PTSD: The role of mental defeat and alienation. *Journal of Traumatic Stress.*

Foa, E.B. & Riggs, D.S. (1993). Post-traumatic stress disorder in rape victims. American Psychiatric Press Review of Psychiatry, 12, Washington, DC:

FOA, E.B., RIGGS, D.S., DANCU, C.V., & ROTHBAUM, B.O. (1993). Reliability and validity of a brief instrument for assessing post-traumatic stress disorder. *Journal of Traumatic Stress, 6*, 459–473.

FOA, E.B., RIGGS, D.S., MASSIE, E.D., & YARCZOWER, M. (1995). The impact of fear activation and anger on the efficacy of exposure treatment for PTSD. *Behaviour Therapy, 26*, 489–499.

FOA, E.B., STEKETEE, G., & ROTHBAUM, B.O. (1989). Behaviour/cognitive conceptualization of post-traumatic stress disorder. *Behaviour Therapy, 20*, 155–176.

FOA, E.B., ZINBARG, R., & ROTHBAUM, B.O. (1992). Uncontrollability and unpredictability in post-traumatic stress disorder: An animal model. *Psychological Bulletin, 112*, 218–238.

FRAZIER, P. & SCHAUBEN, L. (1994). Causal attributions and recovery from rape and other stressful life events. *Journal of Social and Clinical Psychology, 13*, 1–14.

JANOFF-BULMAN, R. & FRIEZE, I.H. (1983). A theoretical perspective for understanding reactions to victimisation. *Journal of Social Issues, 37*, 105–122.

JOSEPH, S., ANDREWS, B., WILLIAMS, R., & YULE, W. (1992). Crisis support and psychiatric symptomatology in adult survivors of the Jupiter cruise ship disaster. *British Journal of Clinical Psychology, 31*, 63–73.

JOSEPH, S.A., BREWIN, C.R., YULE, W., & WILLIAMS, R. (1991). Causal attributions and psychiatric symptoms in survivors of the Herald of Free Enterprise Disaster. *British Journal of Psychiatry, 150*, 542–546.

JOSEPH, S.A., BREWIN, C.R., YULE, W., & WILLIAMS, R. (1993). Causal attributions and post-traumatic stress in adolescents. *Journal of Child Psychology and Psychiatry, 34*, 247–253.

KEANE, T.M., SCOTT, W.O., CHAVOYA, G.A., LAMPARSKI, D.M., & FAIRBANK, J.A. (1985). Social support in Vietnam veterans with posttraumatic stress disorder: A comparative analysis. *Journal of Consulting and Clinical Psychology, 53*, 95–102.

KILPATRICK, D.G., SAUNDERS, B.E., AMICK-MCMULLAN, A., BEST, C.L., VERONEN, L.J., & RESNICK, H.S. (1989). Victim and crime factors associated with the development of crime-related post-traumatic stress disorder. *Behaviour Therapy, 20*, 199–214.

MINEKA, S. (1985). Animal models of anxiety based disorders: Their usefulness and limitations. In A.H. Tuma & J.D. Maser (Eds.), *Anxiety and the anxiety disorders*. Hillsdale, NJ: Erlbaum.

RESICK, P.A., SCHNICKE, M.K., & MARKWAY, G. (1991). *Relationship between cognitive content and posttraumatic stress disorder.* Presented at the Association of Advancement of Behavior Therapy, New York. November.

RIGGS, D.S., ROTHBAUM, B.O., FOA, E.B. (1995). A prospective examination of symptoms of

post-traumatic stress disorder in victims of nonsexual assault. *Journal of Interpersonal Violence, 10*, 201–214.

RIGGS, D.S., FOA, E.B., ROTHBAUM, B.O., & MURDOCK, T. (1991). Post-traumatic stress disorder following rape and non-sexual assault: A predictive model. Unpublished manuscript.

RIGGS, D.S., DANCU, C.V., GERSHUNY, B.S., GREENBERG, D., & FOA, E.B. (1992). Anger and post-traumatic stress disorder in female crime victims. *Journal of Traumatic Stress, 5*, 613–625.

ROTHBAUM, B.O., FOA, E.B., RIGGS, D.S, MURDOCK, T., & WALSH, W. (1992). A prospective examinations of post-traumatic stress disorder in rape victims. *Journal of Traumatic Stress, 5*, 455–475.

STEIL, R., FROMMBERGER, U., & EHLERS, A. (in preparation). Intrusive memories of accidents: A prospective study.

TAYLOR, S., KOCH, W.J., & MCNALLY, R.J. (1992). How does anxiety sensitivity vary across the anxiety disorders? *Journal of Anxiety Disorders, 6*, 249–259.

ULMAN, S.E. (1995). Impact of social relations of sexual assault victims. Submitted for publication.

VAUGHAN, K. & TARRIER, N. (1992). The use of image habituation training with post-traumatic stress disorders. *British Journal of Psychiatry, 161*, 658–664.

WENNINGER, K. & EHLERS, A. (1995). Dysfunctional cognitions and adult psychological functioning in child sexual abuse survivors. Submitted for publication.