

Exposure Therapy for Post-traumatic Stress Disorder  
Four Case Studies

DAVID A. RICHARDS and JOHN S. ROSE

Four cases of PTSD, and their treatment, are described. Symptoms responded differently to two behavioural approaches. *In-vivo* exposure was effective for phobic anxiety while imaginal exposure improved dysphoria and some phobic symptoms. Audio-taped imaginal exposure may be important as part of treatment.

*British Journal of Psychiatry* (1991), 158, 836–840

Post-traumatic stress disorder (PTSD) was first included in the DSM–III diagnostic manual in 1980 (American Psychiatric Association), although the concept of a stress-generated neurotic condition is much older. The diagnosis of PTSD requires several conditions to be met including traumatic genesis of the problem, heightened arousal, avoidance, disassociative symptoms and re-experiencing symptoms.

Post-traumatic stress disorder has since been the subject of much research. Descriptive studies (e.g. Keane *et al*, 1987) have validated the diagnostic criteria. Other studies (e.g. Foy & Card, 1987) have investigated which factors predict development of PTSD, including: extent and nature of the trauma experienced, role of personality, past psychiatric illness, previous life events, degree of social support, and previous coping styles.

The disorder has been treated with techniques derived from many perspectives including psychodynamic, behavioural, and biological. However, there are certain core components which are common to all treatments. Friedman (1988) makes the point that:

“pharmacotherapy alone is rarely sufficient to provide complete remission of PTSD. Symptom relief provided by medication enables the patient to participate more thoroughly in individual, behavioural or group psychotherapy.”

The majority of reports of behavioural or dynamic psychotherapy include descriptions of procedures where imagery is used to treat PTSD. This literature is summarised by Fairbank & Nicholson (1987) who conclude that:

“direct therapeutic exposure to the memories of trauma emerged as the treatment technique common to all three theoretical models.”

The precise form of imagery used differs between and within the different models.

**Behavioural models of PTSD**

The avoidance of situations and objects directly associated with the trauma and marked physiological arousal in the presence of feared stimuli are major PTSD symptoms. A similar picture is seen in specific phobias. However, PTSD has certain dissociative symptoms not present in phobias such as psychogenic amnesia, re-experiencing symptoms such as flashbacks and nightmares, and heightened levels of general arousal.

The model of PTSD described by Foy *et al* (1987) considers the symptoms to be a conditioned response to a traumatic event. Everyday objects and situations become associated with the traumatic event. These conditioned stimuli then provoke the same response as the original trauma. The response persists for a number of reasons, including the sufferer's avoidance of stimuli associated with recall of the traumatic memory and avoidance of the memory. This reduces the opportunity for exposure to the emotions provoked by the memory, leading to continued symptoms.

Although PTSD, by definition, must involve exposure to an aversive event, most phobics do not report such an experience at the start of their problems. More recent explanations for the development, selectivity and appearance of phobias at certain ages have included Gray's (1987) ideas on maturation and innateness. If the route of acquisition of specific phobias is different from those fears acquired traumatically then the outcome of treatments successfully used to treat phobias may be less confidently predicted in PTSD.

Graded, prolonged and repeated *in-vivo* exposure to feared cues has been shown to be the most reliable way of eliminating phobias (Marks, 1981). It is at first attractive to use such techniques with an apparently similar condition such as PTSD. However, should the differences between PTSD and phobias outlined above outweigh the similarities then they may not be appropriate. Alternatively, *in-vivo* exposure may not be sufficient for the treatment of PTSD. Although *in-vivo* exposure is generally regarded as more effective than imaginal exposure with phobics and obsessives (e.g. Marks, 1981) there are some situations where real-life exposure is not practical nor possible and imaginal exposure is then used.

As previously noted, imagery has been reported as central to most PTSD treatment programmes. Behavioural applications of imagery include systematic desensitisation (Wolpe, 1958) (involving repeatedly pairing a feared stimulus in imagination with a competitive and incompatible emotional state, such as relaxation), 'implosive' therapy (Stampfl & Levis, 1967), guided fantasy and 'imaginal' exposure. The key component of all imaginal behavioural techniques is that the patient experiences anxiety in imagination, holding the image until he feels comfortable and no longer anxious.

Much of the literature on imaginal behavioural techniques in PTSD includes a relaxation component (e.g. Saigh, 1986). With phobics, relaxation increases the time taken for therapy to be completed and has been shown to be unnecessary for clinical improvement (Gillan & Rachman, 1974). Some of the PTSD studies using relaxation also include implosive or dynamic themes.

Four cases are presented where both imaginal and *in-vivo* exposure were used to treat PTSD. Imaginal exposure does not involve relaxation or dynamic cue presentation. Imaginal cues are re-creations of the person's memories of the original traumatic incident. Imaginal exposure was audio-taped to facilitate imaginal exposure homework.

#### Treatment method

A typical imaginal treatment session lasted 90 minutes, of which 60 minutes was exposure. The patients were asked to imagine and recount their traumatic experience in the first person, present tense, i.e. as if it were actually happening in the treatment session. Therapist intervention was minimal except to encourage the patient to hold difficult scenes in their imagination until they became less distressed. The patient was asked to listen to the audio-tape of the session at least four times a week for one hour at home and to imagine the scene, thus repeating the treatment session at home. All four

patients complied with this instruction. New tapes were generated from each subsequent treatment session.

Outcomes were measured by standard measures of mood (Beck Depression Inventory (BDI), Beck *et al.*, 1974), anxiety (Fear Questionnaire (FQ), Marks & Mathews, 1979), social adjustment (Marks, 1986) and with self-report of behavioural change. Outcome measures are summarised in Table 1.

#### Case reports

##### Case 1

B, a 47-year-old electrician working in a pharmaceutical factory, presented with a phobia of electrical machinery, particularly large high-voltage contactor panels. This was preventing him from doing his job and his future with the company was in jeopardy.

His problems began in January 1984 when he awoke one morning with a severe headache. From that time his headaches were severe, frequent and extremely debilitating. An extensive neurologist's examination could find nothing to explain his condition. The only other symptom was an occasional shakiness. He took numerous days off work because of headaches and used excessive amounts of pain killers.

In September 1986, two and a half years after the headaches began, he was sleeping at work during a tea break when a colleague took a photograph of him using a flashgun. He awoke with a start and had an intrusive image ('flashback') of an accident at work nearly seven years earlier while he was mending a contactor panel. There had been an explosion in the panel which had burnt his face and hair, temporarily blinding him. Subsequent explosions in the panel were particularly frightening as he could not see to get away. Following the flashback he started to have frequent, vivid nightmares of the incident, during which he could smell his burning flesh. He became convinced that the explosion was the source of his headaches and was referred to a psychiatrist, who performed abreaction on him three months later.

After the abreaction his headaches vanished, but he became acutely fearful of the electrical panels. This phobic anxiety became worse until he was unable to do any of his normal duties. Two months later his headaches returned at a frequency of two per week. Nightmares were still a feature, as was excessive use of pain killers. He was moderately depressed, felt the future was hopeless and found it difficult to make decisions. At this point an urgent referral for behaviour therapy was made to try to resolve his phobic anxiety.

The first ten weeks of treatment comprised *in-vivo* exposure to the electrical contactor panels, during which he performed standard examination procedures on the panels. The sessions were graded over the ten weeks gradually achieving an increasing similarity to the procedure which had led to his initial trauma. His phobic anxiety was eliminated by this approach but his headaches increased in frequency and intensity, so that for the last four weeks of *in-vivo* exposure they were occurring constantly.

Table 1  
Mean patient scores on outcome measures

Fear Questionnaire	Dysphoria	Problem rating	Target rating	Social adjustment	Beck Depression Inventory	
Pre-therapy	46	27.5	7.5	7	18.5	18.7
Post-therapy	26.5	7.8	2.8	0.5	6.8	7
Follow-up <sup>1</sup>	8.7	5	1.3	1	1.3	3.5

1. Follow-up data available for three patients only.

A one-hour session of imaginal exposure to the actual explosion then took place, consisting of two half-hour presentations of the image. During the imaginal exposure B reported experiencing the smell of his burning flesh. The session was audio-taped and this was used for repeating the imaginal exposure at home four times weekly for the next two weeks. Three days after the first session of imaginal exposure his headaches reduced to a frequency of two per week.

At discharge (week 17, following 11 treatment sessions), B showed reductions in anxiety and depression to minimal levels on the BDI and the Dysphoria subscale of the FQ. Improvement continued at six-month follow-up. His headaches had stabilised at one per week, lasting only a couple of hours and required no prescribed medication for their control. He was able to resume his duties as an electrician and his job was secure.

#### Case 2

G, a 29-year-old police constable, presented with fear and avoidance of leaving the police station. He felt extreme panic when he attempted to do this, suffering palpitations, nausea and hyperventilation. His problems were preventing him from working. He had no past psychiatric history or history of drug or alcohol abuse. He described himself as a perfectionist, worrying at any time if he was unable to give his best to his job.

Onset of this problem was during an incident at work when he was threatened by two youths while reprimanding a member of the public for a traffic offence. During this confrontation he had a 'flashback' of an incident two years earlier when he had been hit while arresting a shoplifter. As a consequence of this flashback he became so paralysed with fear that he could not even call for help on his radio and had to back down from the confrontation.

Treatment took eight sessions. The first session, lasting one hour, consisted of imaginal exposure to the initial incident when he had been hit. This session was audio-taped and he used the tape for daily imaginal exposure at home. After three weeks, when his anxiety at imagining the scene had reduced by 75%, he undertook *in-vivo* exposure to normal police activities by returning to work. He graded the work he had to do and avoided conflict situations for the first three weeks back at work. He then re-started all normal police work.

At discharge, his FQ score had reduced from 48 to 18 and dysphoria from 35 to 6. BDI score reduced from 21 to 7. These improvements persisted to three-month follow-up and he continued to work as a policeman without any further difficulties.

#### Case 3

E, a 41-year-old woman, was attending a psychiatric day hospital after general practitioner (GP) referral for agoraphobia and panic. She was severely handicapped, could not walk or shop alone, could not travel on buses and avoided paying for goods or going into a bank. She feared that she would get attacked, particularly when men were present. She was also generally anxious and depressed.

Her problems started two and a half years earlier after she was robbed by two armed men while working as a petrol station attendant. Although not physically injured, she was repeatedly threatened with an axe and an iron bar. Following the attack she was unable to return to work, had frequent nightmares related to the incident and many intrusive 'flashback' experiences. One of these occurred three days after the incident when she 'saw' her attackers leaping out of a cupboard at home. She had not been able to open the cupboard again since that day.

There was no previous psychiatric history and nothing of note in her family or personal histories. During eight months at the day hospital she was treated with major and minor tranquillisers and an antidepressant, and took part in anxiety management groups, relaxation classes and an *in-vivo* exposure programme. Although drugs were helpful for her sleep problems, none of the above approaches alleviated her PTSD symptoms.

She then received seven sessions of specialist behaviour therapy, consisting of ten hours in total, three and a half of which were therapist-aided. Her assessment showed continuing high levels of phobic anxiety, dysphoria and general handicap, and moderate depression. The first three sessions consisted of one hour of imaginal exposure to the attack. The sessions were audio-taped and E repeated the exposure daily with the aid of the tape. At first she was accompanied by nursing staff, then later her husband, and finally alone. After four weeks of this approach her anxiety while imagining or thinking about the scene had reduced by 50%. Mid-treatment measures showed 50% reductions in dysphoria and depression scores but little reduction in phobic anxiety.

*In-vivo* exposure exercises were re-started and this time were quickly successful. She was gradually able to enter her feared situations and could open her cupboard for the first time since the attack. She can now enter most normal social situations, pay for goods in shops, and travel on buses. Flashbacks and nightmares remain but at a reduced frequency and intensity. Depression and dysphoria were reduced still further at discharge but follow-up data are not available.

#### Case 4

K, a 32-year-old policeman, was referred for behaviour therapy for management of explosive outbursts of anger in crowded situations. In these situations he would feel nauseous, sweaty, increasingly tense and would physically push his way out of the crowd to freedom. He presented with moderate depression with initial insomnia, nightmares and increased irritability. Because of his problem he had been off work for 12 months. The problem started four years earlier when he had been crushed in a crowd control incident that had left several people dead; he had lost consciousness before being pulled to safety. Since the incident, treatment had consisted of several lengthy stays in police convalescent homes and he had recently been prescribed thioridazine (50 mg nocte).

Treatment was by four sessions of therapist-assisted imaginal exposure to the initial incident with audio-tapes for homework. At this point he showed marked reductions

in nightmares, his mood improved significantly and he became much less irritable. He felt able to commence a programme of *in-vivo* exposure, which previously he had refused to contemplate. *In-vivo* exposure was homework-based with his wife as a co-therapist and consisted of graded exposure to crowded situations. It was also possible to stop his medication at this point.

At discharge, five weeks later, he was back in uniform and able to carry out all normal police duties. On a range of outcome measures his improvement was rated at over 80%. These gains were maintained at six-month follow-up.

### Discussion

Four cases of long-standing and severely debilitating PTSD were successfully treated with a combination of *in-vivo* and imaginal exposure. Therapy was swift and effective, leading to resolution of all major PTSD symptoms. The use of audio-tapes for imaginal exposure homework greatly increased the amount of exposure possible without requiring further therapist time. Self-exposure has been shown to be crucial for the effectiveness of *in-vivo* exposure (McDonald *et al.*, 1979). Audio-tapes allow the same principles to be applied to imaginal exposure, resulting in more rapid treatment gains for our patients. Relaxation was not necessary for treatment. Following imaginal exposure, residual phobic avoidances were eliminated rapidly with *in-vivo* exposure. Where *in-vivo* exposure was tried first, it was either ineffective or only partially effective. Although the results of this series of case studies are uncontrolled they do indicate several possible directions for future clinical activity and PTSD research.

The order in which imaginal and *in-vivo* exposure was carried out may be an important consideration when planning treatment. In cases one and three, where *in-vivo* exposure was tried first, case one responded with reduced phobic anxiety but concurrent increase in other symptoms, whereas case three showed no response to treatment over eight months. Cases two, three and four showed improvements in dysphoria and depression following imaginal exposure and then rapid elimination of phobic anxiety when *in-vivo* exposure was carried out.

Possible explanations for these results can only be speculative at the moment. With anxiety disorders, such as phobias and obsessive-compulsive disorders, depression is known to inhibit the process of habituation to feared cues (e.g. Marks, 1987). Depression is commonly seen in PTSD patients and was a feature of all four cases. It may be that once the depression had lifted, *in-vivo* exposure was effective. However, this would not explain why *in-vivo* exposure was effective in case one, apparently to the detriment of other symptoms. Neither is it

immediately apparent why imaginal exposure should result in improvements in mood.

Another possible explanation is that *in-vivo* exposure is unnecessary, imaginal exposure being effective for all symptoms. However, this is unlikely since cases two, three and four all showed marked phobic anxiety at the end of the imaginal phase of treatment.

The emotional processing model of fear reduction described by Foa & Kozak (1986) may account for some of our clinical findings. They suggest that techniques leading to emotional processing of fear, and therefore good clinical outcome, should include elements that activate the complete fear memory, including information on stimuli, the individual's response and the meaning of the fear. Treatment should also include information on behaviour that is incompatible with the person's usual response. During therapy, we should encourage patients to recall fear information that is as close as possible to their actual trauma. The better we do this, the more effective we will be activating the trauma memory and allowing processing to occur. Imaginal exposure to the actual trauma may be a more effective and controlled way of reviving patients' memories than *in-vivo* exposure.

Imaginal exposure may also give greater access to the 'meaning' elements of the memory. Foa *et al.* (1989) argue that it is the personal meaning of patients' trauma experiences that is so important in understanding and treating PTSD. For example, case three may not have responded to *in-vivo* exposure to feared situations (such as the presence of males) because, although frightening, such situations did nothing to challenge her memory of her attack. Only by repeated exposure to the actual memory was symptom reduction achieved. The experience of a different response – in this case a calmer, non-fearful one – in the presence of the previously fearful memory helped emotional processing of the trauma.

However, *in-vivo* exposure may be necessary for activation and modification of other secondary fear memories, leading to full resolution of phobic symptoms. These symptoms may be acquired through a process of classic conditioning during the traumatic learning situations that produce most cases of PTSD.

The results suggest that when *in-vivo* exposure is ineffective with PTSD, imaginal exposure to trauma memories should be employed before abandoning behavioural approaches. Controlled research would now be indicated to assess the relative importance of *in-vivo* and imaginal exposure in PTSD so that the optimum combination of treatments can be determined.



## References

- AMERICAN PSYCHIATRIC ASSOCIATION (1980) *Diagnostic and Statistical Manual of Mental Disorders* (3rd edn). Washington, DC: APA.
- BECK, A. T., RIAL, W. Y. & RICKELS, K. (1974) Short form of depression inventory: cross validation. *Psychological Reports*, **34**, 1184–1186.
- FAIRBANK, J. A. & NICHOLSON, R. A. (1987) Theoretical and empirical issues in the treatment of post-traumatic stress disorder in Vietnam veterans. *Journal of Clinical Psychology*, **43**, 44–55.
- FOA, E. B. & KOZAK, M. J. (1986) Emotional processing of fear; exposure to corrective information. *Psychological Bulletin*, **99**, 20–35.
- , STEKETEE, G. & ROTHBAUM, B. O. (1989) Behavioural/cognitive conceptualisations of post-traumatic stress disorder. *Behaviour Therapy*, **20**, 155–176.
- FOY, D. W. & CARD, J. J. (1987) Combat-related post traumatic stress disorder etiology: replicated findings in a national sample of Vietnam-era men. *Journal of Clinical Psychology*, **43**, 28–31.
- FOY, D. W., CARROLL, E. M. & DONAHOE, C. P. (1987) Etiological factors in the development of PTSD in clinical samples of Vietnam combat veterans. *Journal of Clinical Psychology*, **43**, 17–27.
- FRIEDMAN, M. J. (1988) Toward rational pharmacotherapy for posttraumatic stress disorder: an interim report. *American Journal of Psychiatry*, **145**, 281–285.
- GILLAN, G. & RACHMAN, S. (1974) An experimental investigation of behaviour therapy in phobic patients. *British Journal of Psychiatry*, **124**, 392–401.
- GRAY, J. A. (1987) *The Psychology of Fear and Stress* (2nd edn). Cambridge: Cambridge University Press.
- KEANE, T. M., WOLFE, J. & TAYLOR, K. L. (1987) Post traumatic stress disorder: evidence for diagnostic validity and methods for psychological assessment. *Journal of Clinical Psychology*, **43**, 32–43.
- MARKS, I. M. (1981) *Cure and Care of Neurosis*. New York: J. Wiley and Sons.
- (1986) *Behavioural Psychotherapy: Maudsley Pocket Book of Clinical Management*. Bristol: Wright.
- (1987) *Fears, Phobias and Rituals*. Oxford: Oxford University Press.
- & MATHEWS, A. (1979) Brief standard self-rating for phobic patients. *Behaviour Research and Therapy*, **17**, 263–267.
- MCDONALD, R., SARTORY, G., GREY, S., *et al* (1979) The effects of self-exposure instructions on agoraphobic outpatients. *Behaviour Research and Therapy*, **17**, 83–85.
- SAIGH, P. A. (1986) *In-vitro* flooding in the treatment of a 6-year-old boy's post traumatic stress disorder. *Behaviour Research and Therapy*, **24**, 685–688.
- STAMPFL, T. G. & LEVIS, D. J. (1967) Essentials of implosive therapy: a learning theory based psychodynamic behavioural therapy. *Journal of Abnormal Psychology*, **72**, 496–503.
- WOLPE, J. (1958) *Psychotherapy by Reciprocal Inhibition*. Stanford: Stanford University Press.
- \*David A. Richards, RMN, ENB650, *Nurse Behaviour Therapist, Institute of Psychiatry, De Crespigny Park, Denmark Hill, London SE5 8AZ*; John S. Rose, RMN, ENB650, *Nurse Behaviour Therapist, formerly Queen Elizabeth Military Hospital, London, now Dept of Psychotherapy, Temple House, Mill Hill Lane, Derby DE3 6SA*

\*Correspondence

## Pattern of Obsessive-Compulsive Disorder in Eastern Saudi Arabia

OSAMA MOHAMED MAHGOUB and HASSAN BABIKER ABDEL-HAFEIZ

**In 32 Muslim Saudis with obsessive-compulsive disorder, compulsive acts (78%) and doubts (86%) were the commonest forms. Religious themes predominated in both the obsessions and compulsions.**

*British Journal of Psychiatry* (1991), **158**, 840–842

Obsessive-compulsive disorder (OCD) is one of the rarest conditions encountered in psychiatric practice (Ingram, 1961), although recent community-based epidemiological surveys show it to be more prevalent than hitherto thought (Meyers *et al*, 1984).

Lewis (1936) was "impressed by the frequency with which filth, harm, sex or religion give content to the obsessional ideas". Religious themes were evident in 50% of Jewish OCD subjects in Jerusalem (Greenberg, 1984) and were

prominent in a series of OCD patients in Egypt – a Muslim country (Okasha, 1977).

From the age of 10 years a Muslim should pray five times a day, before which his/her body and clothes must be clean. Prayers consist of a set of sequential activities, preceded by 'body washings' ('*Al-Woodo*') – washing parts of the body a number of times in a fixed order. Urination, defecation or contamination by either nocturnal emission, sexual intercourse or passage of flatus, render the body unclean or 'impure' and necessitate washing it again.

OCD has not been reported before from Saudi Arabia, a conservative Muslim country. Accordingly, the authors carried out a preliminary study to investigate the pattern of OCD in a Saudi culture and to ascertain the impact of religion on the phenomenology.