

BRIEF EXPOSURE THERAPY FOR THE RELIEF OF POSTTRAUMATIC STRESS DISORDER: A SINGLE CASE EXPERIMENTAL DESIGN

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Abstract. The present study tested the effectiveness of Vaughan and Tarrier's (1992) Image Habituation Training (IHT) in the treatment of posttraumatic stress disorder (PTSD) using a single case experimental design. The intervention was a brief exposure treatment involving one therapist-led training session and 12 self-directed homework sessions. Assessment measures were taken at pre-treatment, post-treatment, and 3-month follow-up. Decreases demonstrated in direct standardized measures of PTSD, anxiety, and depression were consistent with previous research. The mechanisms underlying the treatment effect were also investigated. Measures of image intensity, image-related anxiety, and belief in a dysfunctional cognition were taken at session-start, mid-session, and session-end. Decreases in between and within homework sessions using these three measures suggested that the processes responsible for change are complex and interactive. The findings from this study demonstrate the effectiveness of IHT as a brief exposure therapy for PTSD and highlight the need for further research aimed at eliciting the mechanisms of change.

Keywords: Image habituation training, exposure therapy, post-traumatic stress disorder, habituation, brief treatment, single-case design.

Introduction

Exposure therapy has been shown to lead to marked improvement of posttraumatic stress disorder (PTSD) (see Harvey, Bryant, & Tarrier, 2003 for a review). Contemporary explanations of the mechanisms of exposure therapy suggest that exposure acts through the correction of erroneous associations and evaluations (Foa & Kozak, 1986). This process of correction requires the activation of a "fear structure" via exposure to feared stimuli, and the simultaneous presentation of corrective information that is incompatible with the pathological elements of the fear structure. A brief treatment approach that attempts to ensure this emotional engagement of the patient during exposure therapy is image habituation training (IHT) (Vaughan & Tarrier, 1992). In Vaughan and Tarrier's (1992) original study, the IHT procedure produced significant clinical improvements with 8 out of 10 patients demonstrating a marked reduction in anxiety levels. The aim of the present study was to evaluate the effectiveness

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of IHT in relieving symptomatology associated with PTSD and to investigate the nature of the mechanisms underlying IHT. Whereas some studies examining exposure therapy discover reductions in all three clusters of PTSD symptoms (e.g. Richards, Lovell, & Marks, 1994), others propose that exposure therapy in combination with cognitive therapy would provide an optimum treatment as both target different symptoms of PTSD (Lovell, Marks, Noshirvani, Thrasher, & Livanou, 2001). A recent study found no differences between exposure, cognitive restructuring, and a combination of the two (Marks, Lovell, Noshirvani, Livanou, & Thrasher, 1998). This suggests that exposure treatment may be effective in targeting both anxiety-related symptoms and the cognitive features of PTSD. If exposure therapy provides a corrective experience, then an individual receiving IHT should experience improvements in all three clusters of PTSD symptoms and, in addition to this, exhibit changes in cognition without the dysfunctional cognition being directly addressed.

Methodology

Case description

S, a 25-year-old unemployed man, presented with fear and avoidance of leaving his home. He felt extreme panic when he attempted to go outside, experiencing physiological symptoms including muscular tension, palpitations, epigastric discomfort, and hyperventilation. The onset of his difficulties followed an assault by a local gang of adolescents. Whilst eating lunch in his garden with his fiancée and a neighbour, a gang threw stones towards them, narrowly missing his fiancée. S confronted the group. At this point several more youths appeared at the scene. S was attacked with a golf club, which was broken over his head. The shaft of the club was stabbed into the back of his fiancée who had attempted to intervene. At initial assessment, S reported a 9-month history of PTSD symptomatology, including generally elevated levels of anxiety, behavioural avoidance of leaving his home, hypervigilance, sleep disturbance, exaggerated startle response, and intrusive thoughts and images relating to the assault. Following the attack, S was unable to return to work. He subsequently lost his administrative position with a High Street bank. He experienced disruption in some major relationships, most notably the break-up of his relationship with his fiancée. There was no previous psychiatric history nor any remarkable family or personal history. No symptomatic relief had occurred prior to treatment. Although offered medication by his GP, S decided not to accept a prescription.

Design

The present study relied on an AB design, representing assessment (A) and treatment (B). Standardized measures of PTSD-related symptomatology, anxiety, and depression were administered at pre-treatment, post-treatment and follow-up stages. Treatment consisted of the exposure therapy technique IHT. Whilst treatment progressed, data were recorded at each treatment session via visual-analogue scales in an effort to monitor the extent of emotional engagement with the stimulus, the process of habituation, and the patient's belief in a dysfunctional cognition.

Image habituation training (IHT)

Treatment followed the basic protocol offered by Vaughan and Tarrier (1992). The intervention comprised two components; a therapist-led training session followed by 12 self-directed treatment sessions. A one-hour training session, designed to socialize S to the IHT technique, preceded the commencement of treatment. S was asked to independently generate a number of brief descriptions of the recurrent images he experienced and then record each description on an audiotape. S described the sequence of events depicting the traumatic incident in a comprehensive monologue. This was rearranged to form five distinct sentences: (i) I can picture sitting outside with G (fiancée) and B (neighbour) when stones start getting thrown over to where we are sitting, nearly hitting G; (ii) I can imagine walking over to the crowd of four boys who threw them. I can picture walking up to JG. I can picture more people starting to come out of the close; (iii) I can picture standing in front of JG. I can feel a crack to the back of my head. I can feel my legs go and I can picture myself falling to my knees; (iv) I can imagine myself lying on the ground surrounded by a gang of boys all kicking and punching me; and (v) I can hear G screaming. I can see her hands covered in blood from her stab wound.

After recording each of the five descriptions, a 30-second period of silence occurred during which S was asked to visualize as intensely as possible the memory that the description evoked. Following this, the next description from the above sequence was presented and the procedure repeated, and so on. Each description was presented six times. Following the training session, S was instructed to repeat the procedure once more that day and then twice a day for the next five consecutive days.

Results

The PTSD Diagnostic Scale (PDS) and the Revised Impact of Events Scale (RIES) measured PTSD symptomatology. Following the 6-day treatment, there was a marked decrease in the number of PTSD symptoms endorsed and consequently, diagnostic criteria for PTSD were no longer fulfilled. This treatment gain was maintained at a 3-month follow-up stage.

The Beck Anxiety Inventory recorded a moderate decline from 28 at pre-treatment to 16 at post-treatment. The Beck Depression Inventory detected a decrease from a pre-treatment score of 16 to a post-treatment score of 12. Both instruments identified these gains to be maintained at follow-up.

Figure 1a illustrates the self-ratings of image intensity at session-start, mid-session, and session-end points for the training session and each treatment session thereafter, including an evaluative session at 3-month follow-up. Following training, 11 self-directed treatment sessions were completed with a pre- to post-treatment reduction in image intensity being demonstrated. Data recorded at a 3-month follow-up treatment session revealed that these gains were largely maintained. The reduction in experienced anxiety is evidence of the occurrence of both between-session and within-session habituation (Figure 1b). This decrease was maintained at 3-month follow-up. Figure 1c illustrates the decrease in S's conviction in his belief regarding his responsibility for the assault from pre- to post-treatment and at 3-month follow-up.

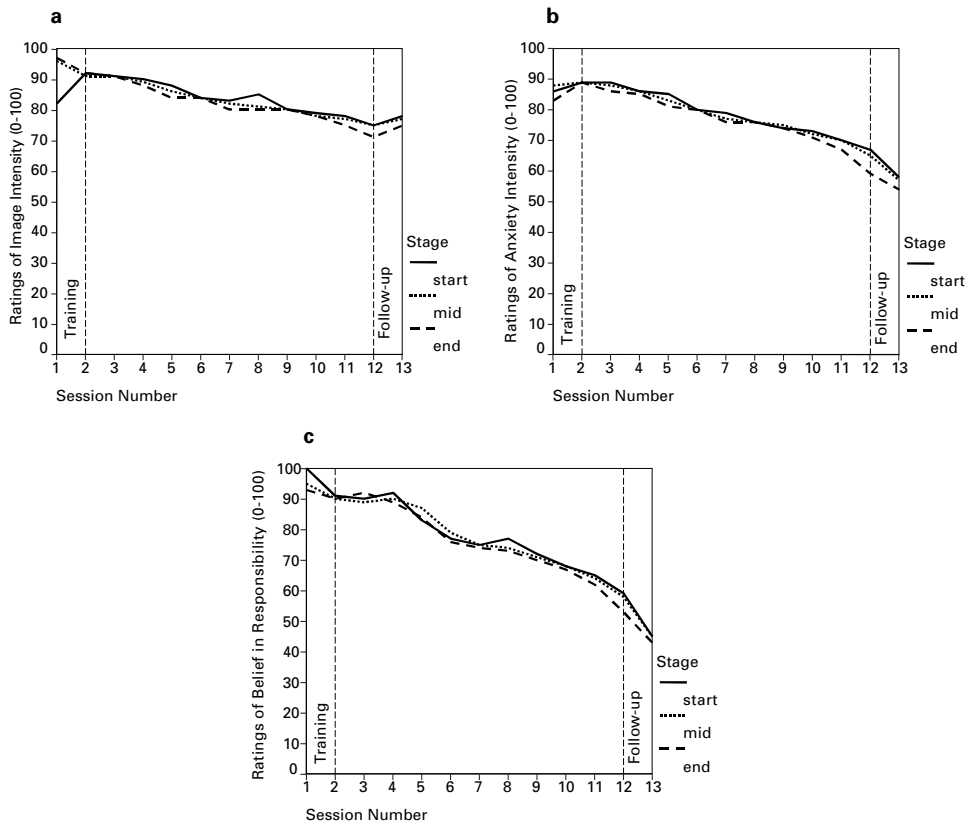


Figure 1. Self-ratings of (a) image intensity; (b) image-related anxiety; and (c) belief in a dysfunctional cognition at session-start, mid-session, and session-end stages

Discussion

The present findings provide evidence, within the context of a single case study, for the efficacy of IHT in the treatment of PTSD. Standardized measures of anxiety and depression indicated moderate improvements were made and maintained in both domains. The PDS identified a 50% decrease in PTSD symptomatology. The RIES pointed to a notable decrease in intrusion items and a moderate decrease in items relating to avoidance. Levels of anxiety and belief in a dysfunctional cognition started to improve with early treatment sessions and continued throughout treatment. Data collected at 3-month follow-up confirmed that IHT extended beyond merely achieving short-term efficacy since gains established immediately following treatment were maintained.

Previous research (e.g. Jaycox, Foa, & Morral, 1998) suggested that emotional engagement with the stimulus is necessary for exposure to achieve its effects. Measures of emotional engagement were initially high and then decreased both within and between treatment sessions (Figure 1a). This pattern of results indicated that, as treatment progressed, the assumed impact of deliberate recollection became less intense in its severity. The data clearly demonstrated

that a gradual reduction in anxiety elicited from exposure to aversive stimuli occurred between sessions with a marked decrease in subjective ratings from pre- to post-treatment (Figure 1b). These effects were maintained at a 3-month follow-up, which suggested that the intervention was rigorous in its effects.

Although no direct cognitive intervention was incorporated into the treatment package, the changes in S's belief in his responsibility for the attack were altered considerably from pre- to post-treatment and this was maintained at follow-up (Figure 1c). This modification of a dysfunctional belief may have been facilitated by the inclusion in treatment of a trauma narrative. The reconstruction of events surrounding the trauma elicited evidence relating to S's personal involvement in the incident. Repeated exposure to the reconstruction presented an opportunity for S to consider the sequence of events and a more realistic appraisal may have emerged by these means. The decrease in anxiety associated with the trauma and the decreasing image intensity progressed at a similar rate to the decrease in S's belief in a dysfunctional cognition. These improvements in negative emotions, coupled with the modification of cognitive knowledge structures regarding the event, may have interacted favourably and the decline of each process may be functionally complimentary. Previous studies (e.g. Tarrier et al., 1999; Marks et al., 1998) indicate that neither exposure nor modification of cognition as therapeutic processes are necessary for improvement, but either procedure may result in both habituation and cognitive change.

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