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**AN INVESTIGATION OF THE CONSTRUCTIVIST MODEL OF
POST-TRAUMATIC STRESS DISORDER**

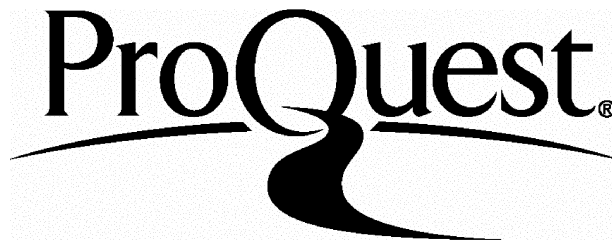
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ABSTRACT

An investigation of the Constructivist Model of Post-Traumatic Stress Disorder was undertaken. A within subjects design was used. Participants completed symptom measures and the Life Events Repertory Grid before receiving psychological therapy for PTSD. Thirteen participants were interviewed and, given this small sample size, the results obtained should be interpreted with caution as they do not allow for a confident confirmation or rejection of the research hypotheses. Exploratory data analysis revealed that these participants seemed to be viewing the traumatic event as more distant from all other life events than non-trauma events. There was some evidence to suggest an association between this variable (distance of trauma from other life events) and participants' scores on the Intrusion subscale of the Impact of Events Scale. Cases illustrating this relationship and outliers presenting a contradiction to the association are described. Other variables (extremity of rating of the traumatic event and the designation of the construct poles used by participants) seem to suggest that the trauma was being rated more extremely than other life events for these participants. The utility of a further variable - the level of elaboration of the traumatic event within the construct system - was not demonstrated in this study. In addition three case studies are described for those participants who were interviewed post-therapy and changes in their construct systems are discussed in relation to the model. The results suggest that further exploration and testing of the potential of the Constructivist Model for informing theoretical understanding of the psychological processes involved in trauma-based disorders would be of benefit. Implications for theory and practice and suggestions for future research are discussed.

1. INTRODUCTION

Overview

In this chapter I begin with a discussion of the nature of Post-Traumatic Stress Disorder (PTSD) briefly tracing its historical development, outline diagnostic criteria and prevalence, describe the course of the disorder and consider the research on treatment effectiveness. I then move on to discuss specific aetiological theories of the development of PTSD focusing in most detail on the cognitive theories. Next I consider a Personal Construct Theory approach to PTSD, outlining briefly some of the fundamental concepts of Personal Construct Theory, suggesting how they might apply to PTSD and describing the Constructivist Model of PTSD. I shall consider how such a model relates to the cognitive theories of PTSD and its potential implications for both theory and clinical practice. Finally I shall consider the research evidence to date for the Constructivist model of PTSD and describe the hypotheses and research questions that this research aims to address, ending with details of my specific research predictions.

1.1 THE NATURE OF POST-TRAUMATIC STRESS DISORDER

1.1.1 A Brief History of Post-Traumatic Stress Disorder

The human response to overwhelming, traumatic events has been described in our works of literature both fictional and autobiographical for many years. Trimble (1985), for example, cites as evidence of this, Hotspur's nightmares of his war experience, his subsequent inability to sleep and eat and his apparent startle response as noted by Lady Percey in Shakespeare's King Henry IV. Daly (1983) argues that it can be surmised from his diary that Samuel Pepys suffered a post-traumatic reaction to the Great Fire of London - some six months after the event Pepys was writing of experiencing "terrors of fire" in his sleep. Trimble (1985) in addition suggests that Charles Dickens may also have experienced a post-traumatic reaction to a railway accident in 1865 indicated by diary entries some time after the event and the development of a phobia of rail travel as noted by Forster (1969) in his biography of Dickens. However, it was not until the end of the last century that the symptoms which

seemed to follow the experience of traumatic events such as war and accidents became a topic of professional interest.

Initially this interest seems to have arisen out of a greater awareness of the experiences of soldiers in wartime. Bateman & Holmes (1995) describe how Sigmund Freud was influenced by the experience of casualties in the Franco-Prussian War (July 1870 - January 1871) whose hysterical paralyses he hypothesised as arising out of battlefield experiences. He noted that when these soldiers were given the opportunity to talk about these experiences they seemed able to gain some relief from their symptoms. He subsequently argued that painful external events can overwhelm the mental apparatus leaving the sufferer unable to deal with the emotions arising from the trauma (Freud, 1919). During the first world war such 'war neurosis' (Moore & Fine, 1990) was termed 'shell-shock' (Mott, 1919) and was originally viewed in Britain as a physical and neurological disorder rather than a psychological condition. However as understanding of the effects of soldiers' wartime experiences on their daily lives progressed a psychological approach was eventually accepted (Myers, 1940). Kardiner (1941) developing a psychoanalytic model of this so-called 'war neurosis' outlined what he considered to be the essential features of this condition. These were the continual experience of a startle response, a tendency towards outbursts of aggression, preoccupation with the trauma, dreams of the trauma and a generally impaired level of personality functioning. He also made the important suggestion that wartime experience created a syndrome which was in essence no different from those syndromes which seemed to develop in response to traumatic experiences in peacetime. That is to say he suggested that there exists one kind of process which can be termed the human response to trauma be it trauma experienced at the battlefield or in civilian life.

The experiences of Holocaust survivors and soldiers in the Korean and Vietnam wars in the latter half of this century ensured that the attention of both professionals and the public became increasingly focused upon the effects of trauma, and especially in the United States in the case of veterans of the Vietnam War, the long-term effects of trauma in adult life. As a result there has developed a wealth of research into the effects of traumatic experiences in both the short and long term. The clinical interest was also so great that in 1980 the American Psychiatric Association decided to include the diagnosis

of Post-Traumatic Stress Disorder as a clinical entry into the Diagnostic and Statistical Manual of Mental Diseases (3rd Edition) (APA, 1980). In addition the importance of Post-Traumatic Stress Disorder as a condition worthy of theoretical and clinical interest was further underlined by the first publication in 1988 of the Journal of Traumatic Stress (Plenum Publishing Corporation, USA), a journal exclusively concerned with articles on Post-Traumatic Stress Disorder and related concepts.

The interest in Post-Traumatic Stress Disorder (henceforth to be referred to as PTSD) in the United States has been matched in recent years in Great Britain. There is a great deal of empirical and theoretical interest in the condition and this is matched by clinical concern. For example, various specialist centres have been set up in different parts of the country established for the purpose of working exclusively with survivors of traumatic experiences such as the Traumatic Stress Clinic (Camden and Islington Community Health Services NHS Trust) in the North Thames Health Authority Region. Media and public interest in the effects of traumatic experience has also been heightened in the past decade given various disasters such as that at the Hillsborough football stadium (15th April 1989), the Herald of Free Enterprise ferry disaster (20th August 1987) and more recently the tragic shootings in the town of Dunblane (13th March 1996). One might speculate that such events in highlighting the need for models of the development and treatment of this disorder have contributed to the popularity of PTSD as a topic for research. Brewin (1996) also suggests that the nature of PTSD as a psychological disorder whose origin can be traced to a relatively specific causative event adds to its attraction as a topic for both clinical and empirical investigation.

1.1.2 The Symptoms of Post-Traumatic Stress Disorder

For a diagnosis of PTSD to be made a person is required firstly, to have experienced what was originally referred to as a “psychologically traumatic event that is generally outside the range of human experience” (APA, 1980). This criterion has been elaborated in subsequent editions - see DSM IV (APA, 1995) - to include, for example the witnessing of or being confronted with the knowledge of

such events. DSM IV (APA 1994) requires that for a diagnosis of PTSD the person must have responded to the event with feelings of intense fear, helplessness or horror and in addition have experience of a number of different symptoms. These symptoms include the intrusive re-experiencing of the event for example in the form of flashbacks and nightmares and the experience of emotional numbing (for example feelings of detachment, inability to experience loving feelings) and/or avoidance of stimuli which are associated with the traumatic event. Many authors (e.g. Green et al, 1985, Horowitz, 1986) view these symptoms as alternating in an intrusion-denial cycle with intrusive symptoms preceding avoidance which is framed as a coping strategy (Creamer et al, 1992). Other characteristic symptoms include increased levels of arousal (for example, difficulty sleeping, heightened vigilance) and there are often additional symptoms of anxiety and depression (DSM IV, APA, 1994). Comorbidity with other psychological disorders is also frequently evident. For example, Keane & Wolfe (1990) in a review found that in a sample of fifty patients as much as 70% were viewed as showing evidence of alcohol abuse and 68% also had a diagnosis of depressive disorder. Impairment in social and occupational functioning are also noted in the diagnostic criteria.

For a diagnosis of PTSD to be made the symptoms described need to have been present for a period of more than one month. DSM IV (APA, 1994) makes a distinction between different types of PTSD in terms of their onset. An 'acute' diagnosis is made if the duration of symptoms is of less than three months and a 'chronic' diagnosis is made if the symptoms have lasted three months or more. In addition the occurrence of 'delayed onset' PTSD is also recognised with a requirement that the symptoms appear at least six months after the traumatic event was experienced.

1.1.3 The Prevalence of Post-Traumatic Stress Disorder

DSM IV (APA, 1994) places the lifetime prevalence rates for PTSD as ranging from 1 to 14% in community populations. For those populations at risk, for example, combat veterans, victims of disasters and criminal offences, the prevalence rate ranges from 3% to 58%. In addition working in

some professions may increase your risk of developing PTSD. A report last year (The Independent, 19th, March, 1996) of a survey of 1,000 police officers in the South-East of England revealed levels of psychological distress at 40% with much higher levels of PTSD than in the normal population. Green (1994) maintains, after reviewing the literature, that given experience of a traumatic event, in the general population rates of PTSD can be expected to range between 25-20%. With some traumatic events, such as rape, for example, rates of PTSD can be higher (e.g Rothbaum et al, 1992 examining rates of PTSD in female sexual assault victims). This factor is recognised in DSM IV which acknowledges that PTSD can be especially severe or long lasting when the trauma is of human design as in the case of rape or torture.

1.1.4 The Course of Post-Traumatic Stress Disorder

PTSD is a psychological condition which develops in response to the experience of an overwhelmingly traumatic event. The causative agent is therefore relatively discrete, often being a single event. However, the question of how such an experience leads to the symptoms of PTSD is a much more complex issue. The general consensus would seem to be that the characteristic symptoms of PTSD (re-experiencing and the numbing) are a result of the person's 'system' (whether that be cognitive, psycho-biological etc) being overloaded. The person attempts to integrate the experience into their life but is continually overwhelmed by the nature of what s/he is required to come to terms with and curtails the integration process through numbing and avoidance resulting in the continued experience of symptoms.

There is some research to indicate that the experience of the characteristic symptoms of PTSD is a normal process following a traumatic event. For example, Rothbaum et al (1992) found that in their research on rape victims almost all met the criteria for a diagnosis of PTSD within one or two weeks of the attack but not all went on to qualify for a diagnosis of PTSD after one month. Other researchers have argued that avoidance symptoms are adaptive in the short term as a defence of denial but can

develop into a more chronic pattern of overcontrol preventing working through of the trauma (Titchener, 1985). This notion may at least partially account for the conflicting evidence on the predictive validity of intrusive and avoidant symptoms on the course of PTSD. For example, McFarlane (1992) argues that levels of intrusive symptoms but not levels of avoidance account for the development of PTSD following in this case a natural disaster. However, Shalev (1992) found that symptoms of intrusion and denial following a terrorist attack did not predict development of PTSD. The presence of intrusive symptoms immediately after a traumatic event may in fact be a normal reaction and will not therefore predict subsequent pathology. However, if such symptoms persist (indicating that there is a continued failure to integrate the trauma into the person's experience) then their predictive power in terms of prognosis increases.

One can therefore hypothesise that most people who experience a traumatic event will exhibit some level of intrusive and avoidant symptoms. Some will go on to develop acute PTSD which may or may not deteriorate into chronic PTSD whereas others will recover and never meet the diagnostic criteria for PTSD. The limited research available appears to confirm this picture. For example, Ramsay (1990) found that in a sample of 36 survivors of a shipping disaster most experienced psychological distress immediately afterwards. At follow-up four and a half years later, approximately two thirds of the sample had sought psychiatric help and one third had been hospitalised for psychiatric difficulty. This kind of variation in outcome has led researchers to investigate possible factors which may influence the course of PTSD.

Individual characteristics, for example pre-morbid personality, age, and gender have all been postulated as risk factors for subsequent development of PTSD following the experience of a traumatic event. Gibbs (1989), in a review of the literature suggests that the findings are inconsistent with regard to age and gender - older people and women are not consistently found to be at a greater risk for developing PTSD. However, prior psychological difficulties have, in some cases, been associated with an increased risk of developing PTSD. For example, Blanchard et al (1996) in a study looking at the development of PTSD in a sample of motor vehicle accident victims found that one significant predictor of PTSD symptoms was the presence of a previous major depressive episode. Other

researchers however have not found prior psychological difficulties to be a significant predictor of PTSD (e.g. Kilpatrick et al, 1985). A more consistent finding is that prior experience of PTSD is associated with a greater risk of developing the condition again following a further traumatic event as found by Blanchard et al (1996) and confirmed by others (for example, Kilpatrick et al, 1985).

In addition individual characteristics relating to the attributional style of people suffering from PTSD have also been investigated as potential influences on course of PTSD. The concept of locus of control is one which has been considered relevant to this issue. For example, Gibbs (1989) cites evidence which suggests that perceived control, that is to say a more internal locus of control in disaster survivors is related to reduced psychological difficulties following the disaster. Similarly, Joseph et al (1994) found that perception of helplessness during disaster was a predictor of the experience of intrusive symptoms at a 30 month follow-up of survivors of the Herald of Free Enterprise disaster. However, Joseph et al (1991) also found that more internal attributions for events related to such ship disasters were associated with a poorer psychological outcome. This result might be explained by some of Janoff-Bulman's (1985) ideas about self-blame. He differentiates between 'behavioural self-blame' and 'characterological self-blame'. In the former, the more adaptive of the two, the person blames one's behaviour for the trauma (e.g I did an irresponsible thing) a factor which can be modified, whereas in the latter, one's character is blamed (e.g. I am an irresponsible, stupid person). Both could be argued as relating to a more internal locus of control, that is to say that you as a person have some responsibility and control over external events rather than events controlling you, but it may be that the behavioural attributions would lead to a more positive outcome than the characterological attributions. Indeed Janoff-Bulman (1985) cites some evidence for this effect. Finally, Joseph et al (1996) suggest that negative attitudes towards emotional expression (i.e. whether survivors perceive becoming emotional a sign of weakness for example) together with perceptions of helplessness at the time of the traumatic event assessed three years post-trauma were associated with higher symptoms, especially anxiety symptom scores as much as five years after the event.

The effect of variables associated with the trauma itself have also been researched. For example, a person is at greater risk of developing PTSD if the event involved was of human design as already

noted and also if a bereavement was involved (e.g. Joseph et al, 1994). In addition Blanchard et al (1996) in their research found that the extent of the injury the person received and the risk of death was also predictive of PTSD. Lyons (1991) also suggests that the extent of personal disfigurement suffered following the traumatic event is a further influential factor on subsequent symptomatology.

The post-trauma environment of the victim/survivor has also been shown to affect the trauma response of an individual. For example, Joseph et al (1994) found that the number of post-disaster life events experienced was significantly related to the general psychological well-being of survivors of the Herald of Free Enterprise disaster. Lyons (1991) in examining survivors who demonstrate resilience rather than pathology following traumatic events suggests that the presence of a supportive network, financial resources and the ability to continue to function in occupational roles at a pre-trauma level all contribute to a positive outcome. Figley (1985) also emphasises the importance of social support and the role of the family in adjustment following traumatic experiences. In addition, Smith (1985) widens the focus postulating a theory of recovery which takes account of community attitudes towards survivors, in this case war veterans, discussing the influence of such attitudes on the integration of traumatic experiences at both the individual and community levels.

Given the various factors which have been demonstrated to influence the course of the response to trauma some authors have suggested that PTSD can be most usefully conceptualised within a psychosocial framework. Wilson et al (1985) suggest an interactional 'person x situation' model postulating a variety of personality and situational variables determining the process of post-trauma recovery. Similarly, Green et al (1985) in their working model of adaptation to trauma suggest a framework within which a variety of factors come to bear upon the processing of the event. These include the experience of the event (e.g. the degree of life threat involved, the intensity of the trauma, survivor guilt, bereavement, etc.), the nature of the recovery environment (e.g. social support, societal attitudes, additional stressors/life events etc.) and individual characteristics (e.g. pre-trauma personality, coping behaviours etc.). They suggest that all these factors will influence the cognitive processing of the traumatic event which determines whether gradual assimilation of the trauma will take place or whether psychic overload will predominate.

1.1.5 The Treatment of Post-Traumatic Stress Disorder

The treatment approaches briefly reviewed here include psychological as opposed to pharmacological interventions, the most widely reported of which involve psychodynamic and cognitive-behavioural therapies as well as the more recent Eye Movement Desensitisation Therapy. Preventative interventions (i.e. those techniques designed to prevent a PTSD response developing) are not discussed.

Roth & Fonagy (1996) conclude that the evidence for the effectiveness of psychodynamic therapy is limited. Lindy et al (1983) report a successful short-term psychodynamic intervention with survivors of a civilian fire with those who completed the treatment showing significant improvements in symptom ratings. Lindy (1985) describes the nature of this kind of psychodynamic work as focusing on the individual's processing of the trauma and the issues of loss and grief that this entails within the therapeutic relationship and utilising transference issues. He presents a single case study illustrating this process with a Vietnam veteran which led to a successful outcome.

Cognitive behaviour therapy techniques for treating PTSD have been more widely suggested and researched. There is some evidence for the effectiveness of systematic desensitisation techniques in reducing levels of physiological arousal associated with intrusive images (e.g. Bowen & Lambert, 1985). However, more evidence exists for the efficacy of exposure techniques. For example, Richards & Rose (1991) report successful exposure therapy treatment with four cases of long-standing PTSD favouring imaginal as opposed to 'in vivo' exposure. They suggest that the former will be a more effective way of accessing the trauma memories and the meaning that the trauma holds for the person. Further studies have found cognitive therapy techniques alone to be at least as effective. For example, Foa et al (1991) found that Stress Inoculation Training (involving for example, relaxation and thought stopping) was superior to both exposure therapy and counselling immediately following treatment. However this significant difference was not maintained at three monthly follow-up.

It is probable that a variety of techniques used in conjunction present the most effective psychological treatments to date. Roth & Fonagy (1996) suggest that a combination of Stress Inoculation Training and/or cognitive restructuring used with exposure techniques would seem to be the treatment of choice at present and there is more recent evidence to support this. Thompson et al (1995) found that for 23 patients who had experienced a stressful event there was a reduction of 42% on PTSD symptoms as measured by the Impact of Events Scale (Horowitz et al, 1979) and a 61% reduction on symptoms measured by the General Health Questionnaire (Goldberg & Hillier, 1979) following their treatment package which consisted of exposure (both 'in vivo' and imaginal) and restructuring techniques.

Finally the technique of Eye Movement Desensitisation and Reprocessing (EMDR) has received some interest as a potential treatment for PTSD in recent years. Shapiro (1989) describes the process as one in which the patient is required to focus on an image of the traumatic event whilst following with their eyes the therapist's finger which is moved rapidly from side to side across the patient's line of vision. At the same time coping statements are repeatedly generated by the therapist. She suggests that a single session of EMDR successfully desensitised patients to the traumatic memories, an effect which was maintained at three month follow-up. However, Roth & Fonagy (1996) suggest that EMDR may in fact simply be a variant of exposure therapy and therefore have little gain over this latter technique. They conclude that more research evidence is required in order to determine the value of EMDR as a therapeutic technique for the treatment of PTSD.

1.2. AETIOLOGICAL MODELS OF POST-TRAUMATIC STRESS DISORDER - BIOLOGICAL, PSYCHOANALYTIC, AND BEHAVIOURAL THEORIES

As described the general consensus would seem to be that PTSD arises as a result of overload of information which can be mediated by a number of factors. This process has been formulated within a number of theoretical frameworks including biological, psychoanalytical and behavioural models

which will be discussed briefly. Cognitive/information processing theories will be discussed in greater detail.

1.2.1 Biological Theories

Biological models of PTSD attempt to explain the symptoms of PTSD from a physiological perspective as evident in the work of Kolb (1987) and Jones & Barlow (1990). However perhaps the most developed theory of PTSD from a biological perspective is that of Van der Kolk (1987) who particularly emphasises the degree to which psychological and biological processes are inter-related. Van der Kolk (1987) proposes that PTSD can be understood in terms of a chronic stress response. That is to say that because of its overwhelming nature people who have experienced a traumatic event tend to have a reduced tolerance for further arousal and respond to any stress as if it were life threatening and inescapable. This is a result of the changes which take place in the autonomic nervous system which because it is permanently bracing itself for a life or death situation produces high levels of neurotransmitters such as noradrenaline and dopamine. Levels of these neurotransmitters become depleted thus creating hypersensitivity in their receptors so that even a small amount of stress leading to release of these chemicals will result in a very high level of arousal and the hyper-reactivity seen in PTSD. Intrusive symptoms and reminders of the event perpetuate this process of hyperarousal and the avoidant symptoms are seen as an attempt to reduce levels of arousal. In addition Van der Kolk's (1987) theory presents an explanation for the phenomenon often seen in PTSD survivors especially Vietnam veterans, who seem to actively seek out situations reminiscent of the trauma. He suggests that activities like this can release endogenous opioids in the body which have the effect of temporarily reducing levels of arousal in much the same way as alcohol may do which is often used in a self-medicating way in people with PTSD (Keane & Woolfe, 1990).

More recently Van der Kolk (1994) has proposed a model for how traumatic experiences are processed in the brain. He suggests that usually experiences are stored in the amygdala which sorts

which will be discussed briefly. Cognitive/information processing theories will be discussed in greater detail.

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in more psychoanalytic terms the 'return of the repressed' (Freud, 1915) means that the details and affect associated with the trauma break through the defences in the form of intrusive symptoms but again threaten to overwhelm and so are defended against in the intrusion - denial cycle

Titchener (1985) relates the experience of a traumatic event to experiences in early infancy. He suggests that the feelings of total helplessness experienced during the traumatic event are akin to those affects in very early infancy when intrusion into the self was experienced due to the limited capacities of the infant's mental apparatus. In adulthood when this situation is repeated through the experience of a traumatic event the terror of returning to such a helpless state and the longing for safety demands an extraordinary level of defence leading to denial and a process by which the traumatic memories become dissociated and charged with affect. Titchener (1985) also suggests a psychoanalytic frame for understanding the symptoms of 'psychic numbing' by maintaining that life threatening experiences destroy the symbolising process which makes life meaningful and thus the traumatised individual finds it difficult to connect with their own experience and the experience of others in any meaningful way.

Lindy (1985) proposes that successful resolution of such a state involves the recall and attribution of meaning to the affect-laden traumatic memories. This re-establishes a sense of continuity with the past and the symbolisation of experience and thus the defences of splitting and denial are no longer required. For this process to be successfully achieved a cohesive sense of self and intact ego is required. Sufficient psychic energy for this working through process is also required making it difficult for people with additional stressors (e.g. bereavement, poor social support) to attend to this task thus relating to the factors which mediate the PTSD response described previously.

1.2.3 Behavioural Theories

The predominant behavioural theory of PTSD is that presented by Keane et al (1985) who developed a conditioning paradigm in their work with Vietnam veterans. The model is based on the learning theory of Mowrer (1960) incorporating classical conditioning and instrumental learning. Keane et al (1985) suggest that following exposure to life threatening experiences people become conditioned to a range of stimuli that were present at the time which if encountered again will prompt a conditioned emotional response with experience of the memories of the trauma, associated affects and physiological arousal. Higher-order conditioning (stimuli present during the trauma become associated with new stimuli which subsequently elicit the conditioned emotional response) and stimulus generalisation (new stimuli because of their resemblance to those present at the trauma also evoke the conditioned emotional response) then occur. The person experiences affective symptoms and physiological arousal when the conditioned emotional response occurs and so avoidance behaviours predominate and in their turn are reinforced as behavioural strategies as they, if only temporarily, reduce the possibility of the conditioned emotional response. Extinction of the conditioned emotional response as a result of repeated exposure to the cues which evoke it does not occur, they suggest, because the exposure is incomplete perhaps, for example, as a result of the use of avoidance strategies. They argue that for extinction to occur exposure to all aspects of the traumatic memories is needed.

Kilpatrick et al (1985) propose a very similar model with reference to victims of rape. They suggest that as a result of the conditioning processes the person's behaviour can become very restricted and the reduced levels of activity can be a risk factor for the development of depression. They also make the suggestion that cognitive events, such as thoughts, can become candidates for conditioned stimuli. For example, a rape victim may become anxious when required to describe her experience because the thoughts which are associated with the rape have themselves become cues for anxiety. Kilpatrick et al (1985) also described various other variables which may affect the conditioning process as do Keane et al (1985) in their emphasis on the importance of social support with Vietnam veterans.

Biological, psychoanalytic and the behavioural models of PTSD all provide valuable conceptualisations of the nature of PTSD aiding both theoretical understanding and clinical practice.

The theories suggest reasons why the events might remain unprocessed (for example, their life-threatening nature, the similarity to early infant states of helplessness). However, they do not fully explain the process by which this failure happens. Van der Kolk's (1994) more recent theory, as described suggests that the schema located within the hippocampus simply cannot cope with the traumatic experiences but he does not describe in detail their nature. The conceptualisation of the process by which traumatic experiences remain unprocessed has therefore primarily become the focus of cognitive/information processing theorists and it is these theories of the PTSD response which have been the most fully developed.

1.3. AETIOLOGICAL MODELS OF PTSD - COGNITIVE AND INFORMATION-PROCESSING THEORIES

Brewin et al (1996) provide a useful classification of the more cognitive theories of the development of PTSD suggesting that they can be divided into two main groups. All theories take as their theoretical basis the idea that PTSD arises out of an inability to integrate trauma related information into existing beliefs or schemas about the world. However some theorists (for example, Horowitz, Janoff-Bulman and Epstein) focus more on the impact of the trauma on the person's life, what Brewin et al call the social-cognitive theories, whilst others (e.g. Foa, Chemtob, Creamer) take the representation and processing of trauma-related information as their focus. This division will be used here to outline the various cognitive aetiological theories of PTSD.

1.3.1 Social- Cognitive Theories

Horowitz's (1986) model, although psychodynamic in origin and influence, emphasises the cognitive processes involved in the response to trauma. In his formulation he suggests that human cognitive

processing is driven by the need to integrate information with existing models of the world - the 'completion tendency'. Following the experience of a traumatic event and an initial phase of shock there is a sense of 'psychic overload' whereby the experience cannot be understood within the context of the person's existing schema that make the world a meaningful place. This condition of overload leads to the mobilisation of various psychological defences designed to keep memories and information about the trauma out of consciousness - they cannot be understood and are therefore extremely frightening and threatening. Such defences include behavioural avoidance, denial and psychic numbing the latter because the experience of any emotion carries with it the danger of being overwhelmed by the emotions associated with the trauma. However, because of the completion tendency the representations of the trauma are recognised as important information which needs to be processed and so they remain in active memory storage. This means that despite the over-control of defences such as avoidance and numbing, representations of the trauma, often in the form of flashbacks, break through in an effort to be brought to attention and assimilated. The result of which is the creation of highly upsetting experiences which are ended again by the defences of avoidance and numbing. A phasic process is therefore created whereby the person alternates between intrusive re-experiencing of the trauma and numbing avoidance of anything to do with the trauma.

In some people this process may eventually lead to an integration of the trauma as the continual re-experiencing exposes the person to the information which can then gradually be integrated and as such can be viewed as a normal process. Horowitz (1986) suggests therefore that successful integration requires that the trauma information be provided in small doses which are tolerable enough to allow processing without the need for the mobilisation of defences. Presumably factors such as social support and the absence of other stressors, for example, which have been shown to influence the course of PTSD operate here by determining whether the environment is one in which aspects of the trauma can be experienced in tolerable doses, although Horowitz does not explicitly state this. The process of integration is therefore one in which the trauma information becomes incorporated into internal models of the world so that the experience becomes part of the person's view of themselves and the world and no longer remains alive in active memory and experienced in the form of intrusive flashbacks and nightmares. However for some people there is a continual failure to integrate, perhaps

because the factors which might enable the information to be experienced in tolerable doses are not present, which Horowitz suggests leads to the more chronic kinds of PTSD responses.

One of the major gaps in Horowitz's theory is that he gives little detail as to what the pre-existing models of the world are and how it is that the experiences of the trauma are unable to be accommodated by them. Other social-cognitive theorists have however focused more upon this issue most notably Epstein and Janoff-Bulman. Epstein (1991) has developed what he has called 'Cognitive-Experiential Self-Theory'. He suggests that each of us constructs a theory of reality developed over the experience of many years which includes beliefs about the world and the self at a pre-conscious level of awareness. This theory will determine how a person attends to, represents, processes information from the environment and retrieves information from memory storage. The function of such a theory he suggests is the same for everyone in that it is to help the person obtain pleasure rather than pain, maintain a benign relatedness with other people, a coherent method for understanding reality and a favourable level of self-esteem. To achieve these functions then the theory of reality operates as if various beliefs corresponding to these needs are true. These beliefs are that the world and others are benevolent (as opposed to malevolent), that the world is meaningful (as opposed to meaningless) and that the self is worthy (as opposed to unworthy). If something happens, as in the case of a traumatic experience, which is incompatible with these beliefs then the theory is unable to fulfil its function leading to stress and the subjective experience of anxiety. Epstein suggests that treatment of PTSD is therefore best directed at the understanding of the person's conceptual system and how constructive change which would reduce this incompatibility would best be achieved.

Janoff-Bulman (Janoff-Bulman, 1985, Janoff-Bulman & Frieze, 1983) develops a similar model in relation to PTSD. He suggests that the experience of a traumatic event leads to a 'shattering' of basic assumptions about reality creating the psychological upheaval that is PTSD. His basic assumptions are similar to the beliefs in Epstein's theory in that they are assumptions about the self being invulnerable and worthy and the world as meaningful. The experience of a traumatic event means that the person has now potentially experienced the world as malevolent and incomprehensible. In addition he suggests that such experience generates negative self-images for example of the self as a victim, weak,

helpless, out of control, frightened and perhaps also afraid of going mad. PTSD, Janoff-Bulman maintains is therefore a result of the shattering of basic assumptions about the self and the world and the more strongly held the assumptions and the less challenged they have been through previous experience the more devastating the results.

Janoff-Bulman suggests that recovery from PTSD involves the acceptance of such shattered assumptions and the re-building of a conceptual structure which allows for the occurrence of traumatic events and which will enable them to effectively function in the world. He outlines two kinds of ways in which this may happen - through direct actions and through intra-psychic/cognitive processes. Examples of the former include changing one's behaviour to enhance the sense of personal control (e.g. securing one's home more consistently following burglary) and eliciting social support which helps enhance self-esteem and the belief that the world can be a secure and safe place. Cognitive strategies include re-defining the event so that it is more consistent with previously held beliefs (e.g. comparison with less fortunate others or potentially worse worlds) and finding meaning in the event or some kind of explanation for it. With respect to the latter Janoff-Bulman raises the issue of blame - discussed previously (section 1.1.4) - suggesting that there are two kinds of self-blame following the experience of a traumatic event - characterological self-blame and behavioural self-blame. If one can blame one's behaviour for the trauma rather than one's self then one can find some kind of explanation for the event which will help in the re-building of the shattered assumptions. A reason for the event helps maintain the belief that the world is meaningful, if the behaviour is at fault then a belief in personal invulnerability, with certain behavioural provisos can be maintained and finally in the absence of characterological blame the person's sense of themselves as basically positive can also be maintained.

The social-cognitive theories therefore take as their focus the impact that a traumatic event has on the person's conceptual system. Horowitz's (1986) theory is useful in that it formulates much of the symptomology of PTSD in a very comprehensive way and describes how chronic reactions to stressful life events can develop. However, he provides little detail about how, for example, one person may go on to develop PTSD and another may not and the ways in which the schemas fail to assimilate the

traumatic experiences. Janoff-Bulman and Epstein in their theories provide some detail on what kinds of information these structures contain in the form of assumptions and beliefs about the world which are shattered as a consequence of the experience of a traumatic event. However, the scope of these theories is limited in that they do not describe how such schemata/belief systems might be represented in cognitive terms in memory structures, for example. Nor do they consider what cognitive processes occur when such beliefs are shattered. A final problem is the finding that individuals with a pre-morbid history of psychological or psychiatric difficulties - whom one would expect to have dysfunctional beliefs regarding themselves and the world that perhaps would be confirmed rather than shattered by the experience of a traumatic event - are more likely to go on and develop PTSD (e.g. Blanchard et al, 1996) especially those who have suffered from PTSD before (e.g. Kilpatrick et al, 1985). What the social-cognitive theories seem to lack - a formulation of the cognitive processes operating in the development and maintenance of PTSD - is the focus of the second group of cognitive theories of PTSD.

1.3.2 Information Processing Theories

Perhaps the most well-known of the information processing theories of the development of PTSD is that of Foa and colleagues (Foa et al 1992, Foa & Kozak, 1986). They propose that following exposure to a traumatic event a 'fear network' is formed in memory structures which contains information about the stimulus event, responses to the event (e.g. cognitive, affective, physiological and behavioural) and information about the meaning of these two different elements of the fear network. The idea of the fear structure is based on the work of Lang (1979) who suggested that the experience of fear is stored as a network in memory with information about fear-relevant stimuli and responses to such stimuli and as such is a program detailing how to respond to danger. In PTSD Foa suggests that the fear structure is more extensive and more easily activated because of the highly threatening nature of the traumatic event and its meaning in terms of the violation of certain basic assumptions about the safety and predictability of the world. When reminders of the traumatic event are encountered the

network is activated and thus information intrudes from it into consciousness in the form of intrusive symptoms and since the affective and physiological responses associated with the event have also been stored within the fear network these are also experienced. Attempts to avoid such activation of the fear structure and the re-experiencing of the trauma lead to the development of the avoidant symptoms evident in people suffering from PTSD.

For successful resolution of PTSD Foa et al (1992) maintain that the fear structure needs to be integrated with the overall memory structure. This is difficult to achieve because the meaning connected to the fear structure contradicts the basic assumptions of the overall memory structure hence the formation of the fear structure and the experience of PTSD in the first place. For integration to take place, the fear structure needs to be activated to be available for modification, the response elements need to become dissociated from the stimulus elements in the fear structure and information about their meaning needs to be modified. Successful integration of the fear structure into the overall memory structure therefore involves the introduction of new information which is incompatible with that contained within the fear structure. An example of such modification could be the experience of the stimulus elements in the absence of the experience of the response elements as in imaginal exposure techniques (e.g. Richards & Rose, 1991).

Chemtob et al (1988) from their work with Vietnam veterans have developed what they call a Cognitive-Action Theory of PTSD which is similar to that of Foa and colleagues. They postulate the existence in traumatised individuals of a parallel distributed hierarchical network (comparable with Foa's fear structure) which is permanently activated. The survivor of the traumatic experience is thus in a permanent survival mode of relating to the world and other people which was considered adaptive at the time of the event. They hypothesise that intrusive experiences are the result of activation from the threat arousal node(s) in the system spreading to other nodes which represent information about other situations. The individual, living in survival mode, is therefore biased to interpreting any ambiguous information in his/her surrounding environment as threatening and activating the threat arousal nodes and leading to the symptoms of hyperarousal and hypervigilance. Presumably in this model the avoidance symptoms are seen as attempts to avoid this cyclical process. Chemtob et al's

(1988) ideas are similar to those of Foa et al but in their emphasis on traumatised individuals operating within a survival mode of functioning which was once adaptive their model is perhaps most applicable to combat veterans.

Creamer et al (1992) have developed a model similar to those of Foa and Chemtob. They suggest that a person's subjective perception of and subsequent appraisal of a traumatic event will influence both short and long term reactions to trauma thus mediating between the severity of the exposure to trauma and the PTSD response. They propose that a traumatic memory network is established as a result of a high level of exposure to trauma and the person's appraisal of the threatening event which may be influenced by such factors as pre-trauma personality and life experiences. As Foa et al also suggest when the person is confronted by information which matches the stimulus, response and meaning information stored in the memory network intrusive re-experiencing of the trauma occurs. Creamer et al (1992) put forward the proposition that that this may be functional to some extent since it provides availability of the information for modification but will often lead to very high levels of arousal thus necessitating the defensive responses manifest in avoidance behaviours. Creamer et al suggest that for recovery from PTSD the memory network must be activated and modified (as Foa et al and Chemtob et al also suggest), a process which they refer to as 'network resolution processing'.

Creamer et al (1992) provide detailed experimental evidence supporting their model in particular and cognitive/information processing models of the development of PTSD in general. Using longitudinal data gathered from survivors of an office block shooting incident they were able to relate stages proposed in their model to symptom levels in survivors. They found that an objective index of the level of exposure to trauma was not directly predictive of symptom levels. The link between these two factors was shown to be mediated by individuals' scores on the Impact of Events Scale (Horowitz et al, 1979) which they took to be indicative of the individual's cognitive processing of the event. In addition they found that the relation between the network formation stage (i.e. initial processing of the trauma) and subsequent intrusive symptoms was stronger than the relation between the latter and the objective levels of exposure again suggesting that the processing of the trauma is more important in determining intrusive symptom levels than the severity of the event. The relation between exposure to

trauma and subsequent avoidance symptoms was also mediated by levels of intrusion supporting their theory that these kinds of symptoms present a defensive strategy and in apparent contrast to Horowitz's (1986) model where the condition of 'psychic overload' leads to denial and avoidance thus preceding the 'break through' of intrusive symptoms.

These information processing theories differ from the more social-cognitive theories in that they emphasise the cognitive processes assumed to be occurring when a person develops PTSD. However, as with the social-cognitive models they also really fail to account for why PTSD develops in some people and not in others. They would also have difficulty in formulating, as Brewin et al (1996) suggest, the more complex PTSD symptoms of emotional numbing for example. Finally, these theories do not suggest how the cognitive schemas/beliefs/assumptions about the world proposed as relevant in the more social-cognitive theories are related to their models of fear networks and fear structures. Both sets of theories are useful in themselves but neither set on their own would seem to account fully for the development and maintenance of PTSD.

1.3.3 A Possible Integration - 'Dual Representation Theory'

This dilemma has lead Brewin et al (1996) to provide an alternative cognitive formulation of PTSD which they have termed 'dual representation theory'. They suggest that the two kinds of theories are explaining two different, albeit related, underlying processes and two kinds of representation of the traumatic experience in memory. The social-cognitive theories focus on one kind of memory representation that of the conscious experience of the trauma and perceptions of the event, which Brewin et al (1996) refer to as 'verbally accessible memories' and which can be voluntarily accessed. In contrast, the information-processing theories take as their focus the processing of the sensory and physiological elements of the traumatic experience the re-experiencing of which are not under voluntary control and occur in the form of flashbacks leading to hyperarousal. Brewin et al (1996) suggest that these kinds of experiences of the traumatic event are stored as 'situationally accessible

memories' that are not under voluntary control and are accessed automatically in situations which are reminiscent of the traumatic experience.

For successful integration of the traumatic event Brewin et al (1996) suggest that the person would need to be able to tolerate the intrusion of the 'situationally accessible memories' into consciousness where they can be habituated to and for there to be little discrepancy between the 'verbally accessible memories' and the person's prior assumptions about themselves and the world. The end product of this would be a reduced or absent bias in the person's memory and attention for stimuli in the environment relevant to the traumatic experience as it would no longer be deemed by the cognitive system as requiring processing. Brewin et al (1996) also outline the alternatives to such successful integration. The first is what they call 'chronic emotional processing' which occurs as a result of, for example, severe or prolonged duration of the traumatic event and a lack of social support resulting in demands made on the individual's coping resources which might compete with the need to process the trauma. This may influence the person's ability to tolerate the intrusions of the 'situationally accessible memories' and exacerbate the differences between prior assumptions and the 'verbally accessible memories' of the trauma. They predict that individuals with PTSD and other difficulties such as depression, substance abuse and anxiety difficulties are more likely to show evidence of such chronic emotional processing. The second alternative to successful integration Brewin et al (1996) refer to as 'premature inhibition of processing' where although the person may appear to be recovered in reality effective processing has been prematurely halted through extensive avoidance strategies. This type of outcome they suggest is more likely where again, discrepancy between existing information and 'verbally accessible memories' is greater, there is inability to tolerate the intrusion of 'situationally accessible memories' but also where an avoidant or repressive coping style is used perhaps even with the use of dissociative defences. This third option they suggest may account for delayed onset of PTSD.

Brewin et al (1996) extend their discussion of the model to treatment implications. They maintain that if the 'situationally accessible memories' whose availability is required for exposure therapy techniques inevitably lead to the experience of very negative emotions such as guilt, sadness and

anger as a result of the activation of the 'verbally accessible memories' then exposure therapy may not prove effective. They therefore recommend the use of cognitive therapy techniques focused upon what the person has made of their experience as well as more exposure-based treatment. Although the model remains untested Brewin et al (1996) convincingly relate it to the available experimental and clinical evidence and it does indeed appear to provide a common ground between the social-cognitive and information-processing theories that has, to date, been lacking in the literature on PTSD.

1.4. A PERSONAL CONSTRUCT PERSPECTIVE ON POST-TRAUMATIC STRESS DISORDER

1.4.1 Kelly's Personal Construct Theory

George Kelly developed his theory of human understanding and experience of the world - Personal Construct Theory- in the 1950's and set its structure out in his publication of 'The Psychology of Personal Constructs' (Kelly, 1955). The theory takes as its basis two fundamental principles that of 'constructive alternativism' and the idea of 'man as scientist' (Kelly, 1963). The first ('constructive alternativism') maintains that there may indeed exist a reality but all we can have are our own representations or constructions of that reality and therefore alternative constructions are always possible and potentially equally valid although not necessarily equally useful. The second ('man as scientist') describes the force behind a person's actions and behaviours in the world not as the fulfilment of certain drives, as for example, classical psychoanalysis might suggest, but the need to feel that one can understand, predict and control one's world. Kelly (1955) therefore suggests that a person creates 'templates' of understanding which s/he will fit over their experience of the world in order to understand it and he calls these templates 'constructs'. Constructs are ways a person has of understanding the world, their experiences within that world, other people and their interactions with

other people. They have varying degrees of usefulness for different kinds of experience and varying degrees of success in their task of enabling and elaborating a person's understanding of his/her experience in the world.

When a person construes an event or person (an 'element' in Kelly's terminology) s/he will note both the similarities and differences between that 'element' and others that s/he has experienced. A construct therefore contains ideas of similarity and difference about events/people inherent within the same construct. In this way Fransella & Dalton (1990) suggest the idea of a construct is differentiated from that of a concept. The latter they propose derives from things being similar to each other or having the same qualities. However, a construct contains within it the idea of contrast as well as similarity. For example they give the example of not being able to have a full understanding about what to be good is without also having the idea of what is bad. A person's construct system therefore involves a system of 'bi-polar constructs' (constructs with two poles) which the person has developed over time (and is continually revising and adapting) as a way for understanding and giving meaning to his/her world. Not all the constructs can be represented by words and it is therefore important to note that construing is not the same as verbal formulation as Winter (1992) points out. Fransella & Dalton (1990) stress that constructs are not just what we think, they are also how we think. Construing is not just thinking it is also feeling and experiencing - emotion and cognition in personal construct theory are not separated out. A further important point is that the two poles of each of these bi-polar constructs are not just dictionary definition opposites but have an idiosyncratic function for the person which enables him/her to differentiate and make predictions about elements in his/her world and in turn how to behave in that world.

This last point illustrates one of the eleven 'corollaries' that Kelly detailed for his theory - that of the Individuality Corollary. Six of these will be discussed here as they are considered to be perhaps the most relevant to a personal construct model of PTSD. (They are all presented in detail in Kelly (1955)). The first as mentioned is the 'Individuality Corollary' whereby Kelly maintains that "persons differ from each other in their construction of events", that is to say that an individual has their own idiosyncratic way of construing events and therefore behaving in certain situations. These

idiosyncratic constructs are organised within a hierarchical system (in everybody) as noted in the 'Organisation Corollary' ("each person characteristically evolves for their convenience in anticipating events, a construction system embracing ordinal relationships between constructs"). A person's construct system is therefore made up of different constructs which are related to each other, some are more superordinate and subsume other more subordinate constructs. This relates to the 'Range Corollary' ("a construct is convenient for the anticipation of a finite range of events only") - each construct has its focus of convenience, has some kinds of elements for which it is most useful for predicting behaviour and events and enhancing a person's understanding of the world but there are other events which it is far less useful at predicting. The most superordinate constructs within a person's system tend to be those which are called the 'core constructs' which relate to how the person sees themselves and the world and as such are quite stable, they are, as Kelly (1955) writes, the means by which we 'maintain our identity'.

So from these three corollaries we have an idea of an individual system, hierarchically organised whose contents consist of different bi-polar constructs of varying utility some of which are more fundamental to our understanding of ourselves and the world than are others. The bi-polar quality of the constructs is important as it provides alternative ways of construing - as stated in the Choice Corollary a person will choose for themselves 'that alternative in a dichotomised construct through which they anticipate the greater possibility for the elaboration of their system'. However what if neither alternative in the bi-polar construct enables this process? A person's construct system is not static. We are continually finding ourselves in novel circumstances for which our construct system may not have the adequate tools (be they individual constructs or the way in which the constructs are organised in relation to each other) to help us understand and elaborate our situation. The purpose of the construct system is to maintain a sense of self-consistency and a means by which the person feels that they are able to anticipate their world of events. In order to do this when existing constructs are not useful the construct system, (either in the form of individual constructs or in the way the constructs relate to each other), may go through a process of change. As Kelly notes in his Experience Corollary ' a person's construction system varies as they successively construe the replication of

events', thus allowing for the idea that existing constructs and relationships between constructs can be modified.

The principle of modification of aspects of a person's construct system is outlined in the 'Modulation Corollary' which states that 'the variation in a person's construction system is limited by the permeability of the constructs within whose range of convenience the variants lie'. So, a person can only construe what his/her system is designed to construe and constructs can only be modified within the context of subsystems of constructs thus avoiding excessive incompatibility. The 'permeability' of constructs refers to their ability to construe a variety of elements (events, people, etc.) especially new elements - usually, the more permeable a construct the more flexible and tolerant of minor inconsistency it is. As a result of this principle the more permeable constructs tend to be superordinate rather than subordinate. The latter are used more for construing more circumscribed experiences whereas the former (which subsume the latter) often (but not always) represent the consistency a person experiences of themselves and the world - their 'core' constructs - which tend not to be invalidated by minor events. So, within limits, so long as the core constructs remain relatively stable, modification of the construct system (or individual constructs) occurs. This transitional process is described by Kelly in terms of three cycles - the Experience Cycle, the Creativity Cycle and the CPC Cycle (for details of these processes see Fransella & Dalton, 1990 or Winter, 1992). In a psychologically 'healthy' person these processes occur without much difficulty and the person will have a construct system which will be able to accommodate new experience through modulation or reconstruction within the system in a way which does not threaten to invalidate their core constructs. However, in the case of psychological disorder, this process of change becomes stuck, the person is unable to modulate their constructs and find new ways of anticipating events in the world and so will repeatedly use old constructions to try and maintain some kind of consistency that does not threaten their core constructs even if these old constructions are continually invalidated.

1.4.2 Personal Construct Theory and Post-Traumatic Stress Disorder

Personal Construct Theory has only recently begun to be used as a framework for understanding PTSD. This seems unusual given that many of the concepts both implicit and explicit in Kelly's theory appear to be readily applicable to this disorder. For example, all models of PTSD talk about an overwhelming of the 'system' and that the experience of a traumatic event cannot be integrated into or accommodated by this 'system' and so remains unprocessed. This 'system' could be the person's construct system and the unintegrated traumatic event be one that the person is unable to construe within their existing construct system because to do so would cause massive inconsistency and threaten the person's core constructs. Kelly maintained that when we are faced with new situations and change we are liable to experience 'anxiety' which he termed as "the awareness that the events with which one is confronted lie mostly outside the range of convenience of one's construct system" so that we are unable to make sense of and, importantly, predict the actions of ourselves and others. This will ordinarily prompt changes in the person's construct system via one or more of the cycles of change referred to. However, sometimes the new situation we are confronted with is so different to what we expect that we experience other emotions (fear, for example). Kelly defines fear as "awareness of imminent incidental change in one's core structures" i.e. that the situation calls for some change to the person's core constructs (the most fundamental constructs as described previously). One step further than this is the emotion of 'threat' which Kelly refers to as "the awareness of an imminent comprehensive change in one's core structures" and which "freezes people in their tracks" (Kelly, 1963, p.168) implying a change which is required of a far more profound nature than would be needed in the emotions of fear and anxiety. Although Kelly did not explicitly discuss PTSD (the disorder did not actually exist as a diagnosis when he was developing his theory) he did write about the experience of threat and how the construct system might respond to threat in a traumatised individual. He suggested that the 'the imminent comprehensive change' that threat entails might mean that the individual would be forced to form an intolerable construct (i.e. one which is intolerable to the core of his/her system) in order to understand and give meaning to this new element. What can an individual do in such intolerable circumstances? Kelly suggested that as a last

resort the person may "turn his whole attention to the extrication of himself from the unholy alliance [i.e. the intolerable construction of the traumatic element] and to the rejection of the new element in one big lump" (Kelly, 1963, p.167). We can therefore hypothesise that when a person experiences a traumatic event they are experiencing what Kelly would refer to as 'threat' which challenges the validity of their core constructs that are central to their identity and their conception of the world and that some kind of massive reconstruction is required if a sense of meaning and consistency is to be maintained.

These ideas share similarities with the social-cognitive theorists of PTSD espoused by Horowitz, Janoff-Bulman and Epstein. The latter all maintained that PTSD arises as a result of incompatibility of the traumatic experience with existing schemas/basic assumptions about the world and that treatment needs to integrate the traumatic experience. However, as suggested previously they do not address a number of issues. Firstly the exact nature of these schema, how they are organised and represented and what form they take is not explained except in the case of Janoff-Bulman's 'basic assumptions'. In addition they do not really account for the difference in response to trauma, that is to say, why some people go on to experience PTSD and others do not, why some fail to assimilate and others do not. The information processing theories of PTSD are also lacking in these two respects. The mechanisms by which assimilation and integration of the traumatic event occurs are also not described in any great detail in these theories. A final criticism is that there has only been limited testing of the social-cognitive theories of PTSD (and the information processing theories) to assess whether the assumptions or beliefs about the world are shattered and that it is that which leads to the symptoms of PTSD. Joseph et al (1997) report some evidence for the relation between perceptions of helplessness and attitudes towards emotional expression and symptom levels in survivors of the Herald of Free Enterprise disaster. However this evidence is limited and the exact relationship especially in relation to the intrusive symptoms of PTSD and attitudes is unclear. One might also argue that the methods used i.e. presenting participants with a series of statements of beliefs about helplessness and attitudes towards emotions are not actually accessing the person's own beliefs about the world but rather imposing generalised beliefs which may or may not be those used by the person in the same way that Janoff-Bulman's basic assumptions are generalised.

A personal construct approach can perhaps fill in some of these gaps. The construct system is the means by which a person gives meaning to and is able to predict events in the world. Each individual has their own system accounting for individuality. Personal construct theory also might maintain that the inability to integrate is a result of a lack of permeability of the core constructs to accommodate the experience of the traumatic event. Some individuals may have more permeable structures whereby the experience of trauma and the possible inconsistencies in understanding of the world can be tolerated by the more superordinate, over-arching constructs within the system thus allowing eventual integration and perhaps explaining individual responses to trauma. In personal construct theory one deals with the person's own construction of reality which might be considered to be a more valid (idiographic as opposed to nomothetic) way of assessing the impact of a traumatic event on a person's understanding and beliefs about the world. Finally, personal construct theory, in the form of the repertory grid provides a means by which a person's construct system can be accessed and described and changes identified. As such, a personal construct model of PTSD is perhaps more accessible to testing than some of the other social-cognitive theories.

1.4.3 A Personal Construct Model of Post-Traumatic Stress Disorder

Recently researchers have proposed and begun to test a personal construct model or Constructivist model of PTSD. Sewell et al (1996) have taken as their basis Foa & Riggs' (1993) idea that what is important in recovery from trauma is the person's flexibility in the way they think about things. As Ronen (1996) suggests in an article on constructivist therapy with children who have experienced traumatic events, the fact of the traumatic event cannot be denied or changed but what can be changed and modified is how an individual processes the event and the accompanying emotions. Sewell et al (1996) maintain that they have extended this idea in their constructivist model of PTSD in a way which also accounts for the dissociation and fragmentation in memory found in PTSD which the cognitive information-processing theories of PTSD (section 1.3.2) take as their focus. They suggest that PTSD is not just the result of a person experiencing an event which doesn't fit with their

construction of themselves and the world (which the social-cognitive theories maintain). The traumatic event cannot be subsumed by the person's superordinate constructs and construed in terms of likeness and difference to other events in the person's life. In response to this problem, Sewell et al (1996) suggest that the traumatised individual develops very isolated constructs or subsystems of constructs which do not relate to the rest of their construct system. One can relate this to Kelly's idea described above in which the traumatised individual rejects the new (traumatic) element in "one big lump". The isolated nature of the subsystem means that the individual cannot integrate any information about the trauma (the sights, sounds, smells emotions) and relate it to their construct system (their understanding of the world) in order to put together a coherent story of what happened to them. It is within this dissociated or unelaborated - in the sense that it does not relate to or become subsumed by the main constructs system - subsystem that some aspects of the trauma are exclusively construed in a very limited way. Sewell et al (1996) also make the suggestion that a dissociated/unelaborated system may already exist as a result of earlier trauma (for example in childhood) which has not been integrated and which is employed again in response to further trauma thus accounting for the higher rates of PTSD found in people who have previously been traumatised (Blanchard et al, 1996).

Figure 1 (page 43) illustrates the Constructivist Model of PTSD developed by Sewell et al (1996). When a traumatic event is encountered threat is experienced ("the awareness of an imminent comprehensive change in one's core structures"). Sometimes the system can accommodate this, as indicated by the left-hand side of the diagram. New constructs are developed which are compatible with the system (i.e. can be subsumed by the person's core constructs) and are integrated thus resolving the PTSD response. This could happen after the event itself or after a period of experiencing the symptoms of PTSD, as the diagram indicates thus allowing for the idea that a PTSD response can be quite normal (see section 1.1.4) but becomes problematic if it continues. If a person is able to integrate their construction of the trauma and their experience continues to validate this adjustment then this state continues. However, if further experience invalidates this adjustment then the PTSD response may occur again which, the authors maintain may account for delayed onset PTSD (see section 1.1.2). The right-hand side of the diagram illustrates the process by which integration fails to

take place. New constructs are not developed or they are developed but are not compatible with the core of the construct system and so remain unintegrated. Other factors may contribute to this state that are not indicated in the diagram. Kelly (1963) briefly outlines some conditions under which reconstruing is unlikely to take place mentioning the problem of preoccupation with old material which makes it difficult to respond to new events constructively. In addition he suggest that having no 'laboratory' (no place where it is safe to experiment with new alternative constructions) makes it difficult to achieve reconstruction. One can see how these issues relate to the factors which have been shown to influence the course of PTSD (section 1.1.4). For example, prior traumatisation (preoccupation with old material) as suggested by Blanchard et al (1996) seems to increase the risk of developing PTSD after further trauma. Post-disaster life events which Joseph et al (1994) found to relate to the psychological well-being of survivors one can also consider to militate against having a 'laboratory' - if one has further difficulties to construe there will be little time and energy available for reconstruing the trauma. Finally, factors such as social support which a number of researchers suggest influences the course of PTSD (Lyons, 1991; Figley, 1985; Smith, 1985) can be seen as conducive to creating a safe, secure environment/laboratory in which alternative constructions of the trauma can be tried out and, hopefully, validated.

The shaded area of the diagram illustrates the process by which PTSD develops. Sewell et al (1996) have attempted in this to account for some of the symptomatology evident in PTSD by proposing that for some elements of the trauma the person may have developed an unintegrated construct cluster but for other aspects of the event this has not been possible. The anxiety symptoms of PTSD (hyper-vigilance, high arousal) are postulated to arise from the person not being able to develop new constructs about the trauma and the emotions of threat, fear and anxiety associated with the trauma are experienced in a very restricted but unresolvable way. At the same time Sewell et al (1996) postulate that this process interacts with the development of new constructs which remain unintegrated or exist in an isolated trauma construct cluster. Such a structure is viewed as extremely unstable because it is so isolated and therefore cannot enter into relationships with other aspects of the construct system. Extreme instability in constructs or groups of constructs can result in what is termed 'slot movement'. This is the process by which, instead of developing new constructs to give meaning

to an event, the individual uses the same constructs but is only able to switch ends to derive meaning which can lead to mood change. To give an example, within this unintegrated subsystem a person may have a construct of 'survivor-victim' which in turn may be linked to various emotions such as 'angry-guilty'. When in a situation in which s/he receives information which leads him/her to see him/herself as a victim s/he may immediately construe him/herself as guilty, as responsible for what happened, which feels intolerable. However, having no further constructs to elaborate the way she feels about the event s/he only has the option seeing him/herself as a survivor and thus angry. S/he (not consciously) has reconstrued but only in a very restricted way and in a way which leads to mood change. (In this example, from guilt to anger). This may be very rapid and in itself both frightening for the person and difficult to construe thus creating a feedback loop to the feelings of intense anxiety.

Sewell (1996) maintains that because the trauma construct system is unintegrated with the rest of the system the person cannot arrive at a global view of the trauma and of the world post-trauma. S/he will be in a state of continual uncertainty and threat, only able to predict an outcome of retraumatisation (this is all the trauma subsystem is really useful for) even if the events which s/he is confronted with represent only a minor threat. This leads to core constructs (which give the person their identity) becoming threatened and loosened. (Loosening of constructs results in the elements they construe constantly being shifted between the alternative poles on the constructs which can be a creative process but can also lead to a fragmented and chaotic view of the self and world - Winter, 1992). Sewell (1996) postulates that this process contributes to the symptoms of depersonalisation, dissociation and fragmentation of memory seen in PTSD. It may also be the process by which intrusive re-experiencing occurs within the context of a highly unstable and dissociated construct subsystem where links between meanings are lost and the event is continually re-experienced in an involuntary manner. Sewell et al (1996) do not describe how treatments such as exposure techniques relate to their model of PTSD, but it might be the case that exposure therapies in PTSD somehow (a) increase the stability of the isolated trauma cluster and (b) reduce the experience of the intense emotions associated with it. This perhaps makes it easier and less threatening for the traumatic experience to be integrated into the construct system as a whole, although this is of course speculation. Finally, Sewell (1996) describes avoidance and emotional numbing as an attempt to achieve greater

certainty by blocking the event out of awareness and avoiding any situations which remind him/her of the event. This may in the short term be effective but in the long term preclude the possibility of an effective reconstruction and an integration of the trauma.

One can see that the Constructivist Model of PTSD shares similarities with both the social cognitive theories of PTSD as already described and the information processing theories. The latter (e.g. Foa et al, 1992, Chemtob et al, 1988, and Creamer et al, 1992) all postulate the existence in PTSD of a 'fear network/traumatic memory network' which needs to be modified if resolution is to occur. One can suggest that this may be comparable to the isolated trauma construct subsystem proposed in the Constructivist Model of PTSD. The Constructivist Model also provides the means by which one can potentially access and represent this 'structure' which has so far not been achieved with the information processing theories. In addition, a criticism of the information-processing theories is that they do not suggest how the schemas and assumptions which are thought to be important in the social-cognitive theories relate to the fear structures. The Constructivist Model is more able to do this by suggesting the process by which the trauma construct subsystem is dissociated from the rest of the individual's construct system. Brewin et al's (1996) 'dual representation theory' has attempted to integrate the social-cognitive and information-processing theories by suggesting the existence of two different kinds of memories for trauma - 'situationally accessible memories' and 'verbally accessible memories' (see section 1.3.3). Again one can see how the 'situationally accessible memories' may relate to the trauma construct subsystem in the Constructivist Model of PTSD. However, formulating what Brewin et al (1996) refer to as the verbally accessible memories may be more problematic. Brewin et al (1996) suggest that these represent the conscious experience of the event which is under voluntary access. If one were to frame this within the Constructivist model of PTSD it would mean that some aspects of the trauma would need to be construed within the main construct system and not exclusively within the isolated trauma construct subsystem. This is of course entirely possible and Sewell et al (1996) themselves maintain that only some aspects of the traumatic experience will be exclusively construed within the unelaborated trauma cluster. It is perhaps more difficult to see how the Constructivist model would account for Brewin et al's (1996) formulation of PTSD.

The last point illustrates an important issue - that is the problem of trying to relate different constructions/theories of a disorder such as PTSD to each other. Inevitably different constructions of PTSD will have similarities and differences with each other and what is perhaps best explained by one set of theories is perhaps not by another set. Different constructions have their own foci and ranges of convenience and one would therefore perhaps not expect a Constructivist Model (especially one which is still effectively being developed and tested) to account for all the proposed mechanisms suggested by other theories. The model's strengths lie firstly, in its ability to represent what happens to a person's understanding of themselves and the world following the experience of a traumatic event in a way which incorporates some of the ideas of both the social-cognitive and the information -processing theories of PTSD. Secondly this can actually be tested via the use of repertory grid analysis to see whether the assumptions about the nature of the construct system in PTSD made by the model correspond to the structure of the construct systems of people with PTSD. A further related advantage is that this allows for individuality of response to a traumatic event since people's construct systems do differ but does not preclude the possibility that certain generalisable characteristics of construct systems may make PTSD more likely. Clearly the model has implications for the development of our theoretical understanding of the processes operating in the development and maintenance of a PTSD response and provides a useful and potentially testable formulation of this process.

In addition it may be of advantage clinically for treatment purposes. As Brewin et al (1996) suggest the use of exposure techniques only in the treatment of PTSD may not be as effective as the additional use of cognitive therapy techniques which address the person's construction of the traumatic event, a proposal supported by the research evidence for effectiveness of treatment in PTSD as outlined by Roth & Fonagy (1996) - see Section 1.1.5. An understanding of what a person has made of their experience could potentially be achieved by eliciting and describing their construct system. This in turn could facilitate the process of reconstruction and guide the clinician to help the client identify both where the difficulties in construing of the traumatic event lie and where possibilities for reconstruction (or re-structuring in cognitive therapy terms) might exist. In personal construct terms this might mean helping the client in the 'tightening' and 'loosening' process (see Fransella & Dalton, 1990, chapter 5) that reconstruction often involves. The Constructivist Model of PTSD

therefore has potential both for furthering our theoretical formulations of PTSD and for aiding our clinical work with people suffering from PTSD.

1.5. RESEARCH AND THE CONSTRUCTIVIST MODEL OF POST-TRAUMATIC STRESS DISORDER

1.5.1 Research Evidence for Constructivist Model of Post-Traumatic Stress Disorder

To date there have been two studies which provide evidence for the Constructivist Model of PTSD. The first of these, described by Sewell et al (1996) compared the construct systems of two groups of Vietnam veterans one group with PTSD and one group without PTSD. They used a repertory grid matrix which they refer to as the Life Events Repertory Grid that takes as its elements a range of life events including the most traumatic event in participants' combat experience. Constructs for these events were elicited using the method of 'triadic elicitation' (this process is described in detail in the methods section of the next chapter) and the resultant grid matrix of constructs and elements was subjected to a hierarchical class analysis using the HICLAS computer programme (De Boeck, 1986). The HICLAS computer program is designed specifically for analysing and producing hierarchical-classes models for repertory grid data and is based on the work of De Boeck & Rosenberg (1988). It can be used to examine the relationships between life events and constructs and produces the best fitting hierarchical representation of the individual's construct system and also indicates which events are construed by which constructs. In order to operationalise the level of elaboration of the identified traumatic events in the participants grids Sewell et al (1996) suggest a measure of this is the number of construct classes (they take classes because a number of constructs may be present at one particular hierarchical level of the system) that are related to the traumatic event within the best-fitting hierarchical model of the individual's construct system. They found that the mean level of elaboration

of the traumatic event in the combat veterans who suffered from PTSD was significantly lower (2.70) than the mean level of elaboration of the traumatic event in the combat veterans who were not suffering from PTSD (3.30). This significant difference remained even after controlling for difference in combat exposure and non-specific elaboration effects (i.e. it might have been the case that the PTSD group had overall less elaborated elements in their construct systems).

Sewell et al (1996) also compared the two groups on further measures of the construct system. They examined what they refer to as Pythagorean Distance of the traumatic event from other events. This measure indicates the extent to which the traumatic event was conceptualised separately/distantly from other events. Sewell et al used this variable to examine construal of events pre and post Vietnam experience. They found that the clinical group viewed the traumatic event to be more similar to post-Vietnam negative events than the control group. Sewell et al took this as representing 'more of the same' phenomenon with new events being construed in a polarised tight manner compared to controls, possibly (although Sewell et al do not suggest this) by the isolated trauma construct subsystem and they view this result as secondary to the failure to elaborate the traumatic event. It is possible that this variable might be of use as a further indicator of the degree of integration of the trauma - one could argue that the more integrated the trauma the smaller the distance of it from other life events as it is being conceptualised less distantly from other events. They also found that participants in the PTSD group had lower levels of variability of intensity (a measure of the flexibility of the construct system meaning that the person can construe the world tightly or loosely in accordance with the demands of the situation) rather than simply higher or lower intensity of grids which would have indicated tight or loose construing, respectively. The higher the variability of intensity the more flexible and potentially adaptive a person's construing. This relates to Foa & Riggs (1993) suggestion that the people most likely to recover from trauma are those with 'flexible' schemas who see the world as sometimes being safe and sometimes dangerous and have a realistic view of their ability to cope.

Sewell et al (1996) suggested also that emotionally held attitudes are usually more polarised and that since people suffering from PTSD experience high levels of affect at times, extremity of ratings in the repertory grids would be high. In addition they suggested that extreme ratings can also be indicative

of mood disturbance as there is potential for slot movement from one extreme to the other of a construct. They found that the clinical group did indeed rate events more extremely than the control group except for non-traumatic events experienced pre-Vietnam. In further support of this finding Sewell et al (1996) asked participants which pole of the construct they would designate as 'positive' and whether the opposite pole was 'negative' or just 'less positive'. The clinical group used the 'negative' designation more often than the control group.

The second study by Sewell (1996) points out that research using Vietnam veterans may be problematic because of the time which has elapsed since the traumatic event was experienced. He therefore takes as his sample people who were exposed to a mass shooting incident at a restaurant which resulted in the deaths of 23 people. One week after the event witnesses were interviewed and the presence of PTSD symptomatology was noted (accepting that for an accurate diagnosis of PTSD symptoms have to be present for more than one month - DSM IV, APA, 1994). Those participants for whom PTSD symptoms were present one week after the event differed significantly from those participants who did not exhibit PTSD symptoms. Participants who showed PTSD symptoms after one week were more likely to have experienced greater exposure to the incident, have less available social support, have experienced prior trauma and have higher levels of anxiety prior to the shooting, findings which obviously relate to factors which have been previously demonstrated to influence the development of PTSD (see section 1.1.4). However, Sewell also interviewed survivors of the shooting at three months after the event and at this point used the Life Events Repertory Grid and performed a hierarchical class analysis on the results. Ten of this group were still symptomatic at this time and ten were not. Sewell found that the ten survivors who were still symptomatic had significantly lower mean levels of elaboration for the shooting incident (1.5) than those who were not symptomatic (3.2). In addition none of the variables which were shown to predict the PTSD symptomatology at one week post shooting (greater exposure, less social support, prior traumatisation and prior anxiety) were significant predictors of PTSD symptomology at three months post-incident suggesting that at this stage the important variable influencing PTSD is the processing of the event as indicated by level of elaboration of the traumatic event.

This last finding clearly relates to Creamer et al's (1992) study which produced evidence that the 'traumatic memory network' mediates between objective levels of exposure to trauma and subsequent symptom levels. These findings would suggest that initially, following a traumatic event, a person's pre-morbid history (which in turn will have influenced the development of their construct system), levels of social support and the extremity of the traumatic experience contribute to influence processing of the trauma and lead to symptoms. However, after this initial period the best predictor of PTSD is the level of elaboration of the traumatic event. Sewell (1996) concedes that the findings so far in relation to the Constructivist model do not directly address causation but do make suggestions about the process of recovery which is of great importance clinically. If, following trauma the construct system is unable to respond by bringing the event within the range of convenience of a substantial proportion of its constructs (either by loosening existing constructs or developing new ones) then the event will remain at a low level of elaboration and recovery is less likely

1.5.2 Current Research Aims and Questions

This research will attempt to explore further the Constructivist Model of PTSD. To date the evidence for the model has been based on studies of people suffering from PTSD as a result of circumscribed events e.g. combat experiences (Sewell et al, 1996) and a mass shooting (Sewell, 1996). In this research my aim is to interview a sample of participants diagnosed with PTSD who have experienced a wider variety of traumatic events which is perhaps more representative of what a clinician might encounter in their practice. I intend to examine both the level of elaboration of the traumatic event and the Pythagorean distance of the traumatic event from other events and compare them with the levels of elaboration and Pythagorean distance of non-trauma events. I will go on to examine how these repertory grid variables relate to symptoms of PTSD and also to symptoms of anxiety and depression in this sample. My original intention had also been to use a repeated measures design comparing pre and post-therapy data for repertory grid and symptom variables for this sample. However, due to high participant drop-out rates from therapy this was not possible - only three sets of

complete pre and post-therapy data were collected. The research aims and predictions described below are therefore developed for a sample of participants interviewed after receiving a diagnosis of PTSD and prior to their beginning therapy.

Sewell et al's (1996) Life Events Repertory Grid procedure will be used to explore the construct systems of participants. The level of elaboration of the events in the grid will be determined using the HICLAS program and it is hypothesised that the traumatic event will be consistently less elaborated than other life events (*prediction 1* below). The relationship of this variable to levels of PTSD symptoms in the sample will be examined and it is predicted that there will be a significant association between these two variables (*prediction 2* below) so that the less elaborated the trauma across the sample the greater the level of PTSD symptoms which the model would predict. Obviously such a relationship, if identified, would be correlational rather than causal.

Using the FLEXIGRID repertory grid program (Tschudi, 1984) the (Pythagorean) distance of the traumatic event from other events will be calculated hypothesising in line with my understanding of the model that the traumatic event will be more distant from events than other non-trauma life events because of the difficulty in construing the trauma in relation to other life experiences (*prediction 3* below). Similarly, the relationship between this grid variable and levels of PTSD symptoms in the sample will also be examined and it is predicted that there will be a significant association between these two variables (*prediction 4* below) so that the greater the distance of the trauma from other events the greater the level of PTSD symptoms which again the model would predict. Again, an association between these two variables would indicate a correlational rather than causal relationship.

The Constructivist Model also suggests that as a result of the reduced level of elaboration (lack of integration) of the traumatic event it is construed in very rigid polarised terms. It is therefore predicted that the traumatic event in participants' repertory grids will be rated consistently more extremely than other events (*prediction 5* below).

Finally, after Sewell et al (1996) an investigation of the designation of the poles of constructs used by participants will also be performed to explore the possibility of polarised construing. Following Sewell et al's (1996) finding it is suggested that the number of non-positive construct poles designated as 'negative' will be greater than those designated as 'just less positive' as an indicator of polarised construing. However, given the lack of an adequate control group to compare before and after designation no predictions are made for this data and they will simply be presented out of interest.

To summarise, the aim of this study is to explore further the utility of two structural variables (level of elaboration and Pythagorean distance) and examine their relationship to the symptoms of PTSD. In addition a further grid variable - extremity of rating of life events - will also be examined in an attempt to identify and illustrate evidence of polarised construing. Finally three individual case studies illustrating the construct systems of the three participants interviewed after completing therapy will be presented to illustrate any structural and content changes which may have occurred following therapy for these three individuals.

1.5.3 Research Predictions

- 1** The traumatic event will be less elaborated in participants grids than other life events.
- 2** There will be a significant association between the level of elaboration of the traumatic event and symptoms of PTSD across participants.
- 3** The traumatic event will exhibit the greatest Pythagorean distance from all other life events than non-traumatic life events.
- 4** There will be a significant association between the Pythagorean distance of the traumatic event from all other life events and symptoms of PTSD across participants.
- 5** The traumatic event will be rated more extremely than other life events.

2. METHOD

2.1. SAMPLE

2.1.1 Recruitment

In order to obtain the required number of participants they were recruited from the Clinical Psychology Departments of three different NHS Trusts - Barnet Healthcare NHS Trust, Haringey Healthcare NHS Trust and the West Middlesex University Hospital NHS. For Barnet Healthcare NHS Trust my research procedure was incorporated into that of a Clinical Psychologist conducting research into the effectiveness of treatment for PTSD and the ethical permission is therefore held in his name. For participants from Haringey Healthcare NHS Trust ethical permission was granted by the Enfield and Haringey Health Authority Local Research Ethics Committee and for participants from West Middlesex University Hospital NHS Trust ethical permission was granted by the Hounslow District Ethics Committee. Copies of the letters of ethical permission can be seen in Appendix One. Finally again in order to maximise potential sample size participants were recruited from police force referrals to a NHS trust with a special contract with this particular force. Ethical permission was obtained from the Head of Human Resources of this force. Information sheets and consent forms differed according to the needs of each ethics committee and copies can be seen in Appendix Two.

2.1.2 Participants

Participants who were identified on assessment in the Clinical Psychology Departments as suffering from PTSD were invited to take part in the research. Over the course of the research twenty five participants were identified and agreed to take part. Three of these subsequently decided not to take part in the research (two of whom also declined the offer of treatment). Six did not attend their research interview and did not engage in therapy. When contacted they had decided that they did not

want treatment. Of the sixteen participants who were interviewed three of them were deemed unsuitable - two showed very high levels of depression with suicidal ideation and were unable to complete the symptom questionnaires and one exhibited symptoms of dissociation and was considered to require a psychiatric assessment. Thirteen sets of pre-measures were therefore obtained. Of these thirteen six subsequently dropped out of treatment and declined a request for a follow-up research interview. Four completed treatment of whom three declined to take part in a follow-up research interview and one is still receiving treatment. Only three sets of post-measures were therefore obtained.

Of the sample of thirteen participants who initially took part in the research all but two of these met full DSM-IV criteria for a diagnosis of PTSD. The remaining two were deemed to be suffering from a PTSD-type reaction and in need of treatment. Only one of the sample had received previous help for psychological difficulties (ten years previously for anorexia nervosa). There were eight men and five women with an average age of 32.9 years ($SD = 8.95$ years, range 19-50 years). Six of the participants were married or living with a partner, four were divorced or separated from partners and three were single. Four of the sample worked as police officers, two were students, four were unemployed and the remaining three were on extended sick leave or retired on medical grounds.

2.2. DESIGN

A within subjects repeated measures design had been intended originally. However only three participants were interviewed post-therapy due to high drop-out rates from therapy.

Suitable participants were identified, shown information sheets about the research (see Appendix Two) and invited to take part in the research before they began attending for therapy. They were all asked to give written informed consent (see Appendix Two for copies of blank consent forms). It was not however always possible to time the research interview between assessment and therapy and some

participants were seen for their pre-therapy research interview after receiving one or two sessions of therapy. When participants had completed their therapy they were invited to take part in a second post-therapy interview where all the measures were administered again.

2.3. MEASURES

2.3.1 Symptom Measures

Three questionnaire measures for assessment of symptoms of PTSD, depression and anxiety were selected following a review of their psychometric properties.

Symptoms of PTSD were assessed using the Impact of Events Scale (Horowitz et al 1979). This is a fifteen item scale designed to measure levels of PTSD in adults. It provides an overall measure of symptomatology and has two subscales one of which measures levels of intrusion of the traumatic event and the other measures avoidance symptoms. The IES is completed by participants. Reliability and sensitivity data on this measure are reported in Horowitz et al (1979).

Levels of depression and anxiety in participants were also assessed using the Beck Depression Inventory (BDI) and the Beck Anxiety Inventory (BAI) respectively. The Beck Depression Inventory (Beck & Steer, 1987) gives an overall measures of symptoms of depression in adults. The BDI has 21 items and is completed by participants. Data on its psychometric properties are reported in Beck et al (1988).

The Beck Anxiety Inventory (Beck & Steer, 1990) measures severity of anxiety in adults. It was designed to measure symptoms of anxiety only minimally shared with those of depression as measured

by the BDI. The BAI has 21 items and is filled in by participants. Data on its psychometric properties are reported in Beck & Steer (1990).

2.3.2 Life Events Repertory Grid Questionnaire

The Life Events Repertory Grid (Sewell, 1996) is a form of repertory grid which takes as its elements life events in participants' lives. Participants were given a questionnaire - the Life Events Questionnaire - to complete. This has fifteen different categories of life events both positive and negative ranging from childhood to present day and including the traumatic event they experienced. Participants were asked to think of a life event for each category. A copy of this questionnaire can be seen in Appendix Three. The events chosen by participants in this questionnaire were used to elicit constructs and compose a Life Events Repertory Grid matrix for each participant, the process of which is described below.

2.4. PROCEDURE

2.4.1 General Research Procedure

Participants who had agreed to take part in the research were sent an appointment time for a research interview. Participants were also sent a copy of the Life Events Questionnaire and asked to fill it in and bring it to their research interview. This was done in order to reduce the time of the interview appointments for participants. At the beginning of the research interview subjects were again given an information sheet about the research. The research was explained to them and they were asked if they had any questions about it. Participants were then asked to sign a consent form. The participants were also told that if they felt distressed then they could stop the interview at any time. Participants were asked their age, marital status, work status and whether they had ever received any previous help for

psychological difficulties. They were then asked to complete the IES, BDI and BAI. If participants had not completed the Life Events questionnaire sent to them prior to the interview then they were given it to complete. The participants were then taken through the Life Events Repertory Grid Procedure described below. At the end of the interview participants were asked if they had any questions about the research. They were also asked whether they felt distressed and would like to talk about any issues which had arisen out of the interview.

Following therapy participants were invited to a follow-up research interview. For the three participants interviewed following therapy the following procedure was used. The same life events chosen at the first interview were used again however the triadic elicitation procedure was repeated in order to elicit new constructs. The Life Events Repertory Grid Procedure (described below) was repeated. Participants were also asked to complete the IES, BDI and BAI. At the end of the interview participants were again asked if they had any questions about the research and whether they felt distressed and would like to discuss any issues that had arisen out of the interview.

2.4.2 Life Events Repertory Grid Procedure

The fifteen life events that participants had named in each of the categories in the Life Events Questionnaire were transferred onto cards. These are the 'elements' for the repertory grid. Bi-polar constructs were then elicited via the triadic method (see Fransella & Dalton, 1990, p.58, and Winter, 1992, p.22). This involves presenting participants with triads of the cards (each with a different life event/element written on it) asking them after Kelly (1955) "How are two of these alike in some important way in which they are different from the third?". The participant's response is the emergent pole of the bi-polar construct (i.e. where likenesses are abstracted). S/he is then asked, again after Kelly (1955), "What is the opposite of (emergent pole of the construct the participant has just named)?" The participant's response is the contrast pole of the bi-polar construct. Next, after Sewell et al (1996) participants were asked whether the emergent or the contrast pole of the construct had the

more positive connotation for him/her and whether the other pole was “negative” or just “less positive” in order to gain some idea of extremity of construing. This procedure was repeated fifteen times in order that fifteen bi-polar constructs could be elicited. Fifteen triads of life events/elements were therefore used, after Sewell et al (1996) four were composed of the traumatic event/element and two positive events/elements; four were composed of the traumatic event/element and two negative elements/events; four were composed of the traumatic event/element and one positive and one negative event/element; and the final three triads were composed of a mixture of positive and negative events/elements not including the traumatic event.

Once all the fifteen constructs were elicited they were written on to a repertory grid together with all fifteen of the elements. The participant was then asked to assign a rating to each of the life events/elements for each of fifteen bi-polar constructs. Each construct was taken in turn and the fifteen life events/elements were shown to the participant and he/she was asked how they would rate the life event/element according to that construct. Participants were asked not to take too much time when considering their response but just to say the number on a six point scale which most applied to each particular life event/element for each construct. A rating of one corresponded to the emergent pole of each construct with a rating of three less so and a rating of four corresponding more to the contrast pole than the emergent and a rating of six corresponding very much to the contrast pole. This process was repeated for each of the bi-polar constructs until a 15 x 15 matrix of ratings of each life event/element on each construct was obtained. The procedure was explained and clarified for participants at each stage. A blank copy of a repertory grid can be seen in Appendix Four.

2.4.3 Life Events Repertory Grid Analysis Procedures

Once the grid matrices were completed the data was subjected to two repertory grid analyses in order to derive the structural variables to be investigated in the research. The calculation of the level of elaboration of the life events/elements was carried out using the HICLAS computer program (De

Boeck, 1986). The grid matrix data for each participant was entered into the program and converted into binary data (ratings of one to three in the grid become '0' and ratings of four to six become '1'). Hierarchical models of the participants' construct systems (incorporating constructs and elements) were then calculated at different ranks (analogous to the factors in a factor analysis). Goodness of fit data is available for the model at each of the ranks and this was compared across all participants. It was decided to take the models at rank five for which the mean goodness of fit for the hierarchical models with the data matrices across participants was 0.94 (SD = 0.07, range 0.74 - 1.00). The rank at which the hierarchical model is calculated determines the number of bottom class (subordinate) constructs to be allowed in the model/representation of the construct system - for these participants this was therefore five. The program then provides an analysis of the construct system indicating where constructs cluster together in a hierarchical sense (i.e. which constructs tend to be more subordinate and which tend to be more superordinate). Because the program also uses the life event/element data as well as the construct data one can calculate which construct clusters are used to construe which life events/elements. Details of how the level of construct elaboration variable was operationalised are given in Section 2.5 below.

The grid matrices of all participants were also subjected to the FLEXIGRID program (Tschudi, 1984) analysis. Once the data is inputted (in this case it is not converted into binary form) the program can be used to calculate a number of grid measures. The program provides a matrix of the distance of each event/element from each of the other events/elements in terms of how it is construed by the construct system. In addition, based on a principal component analysis of the grid matrix, a visual representation of the construct system which loads events/elements and constructs on the two components and plots them in construct space can be derived to give some idea of the organisation of the construct system in relation to the events/elements used in the repertory grid. Details of how the construct variables derived from these FLEXIGRID procedures were operationalised are given in section 2.5 below.

2.5. OPERATIONALISATION OF REPERTORY GRID VARIABLES

Three repertory grid variables were investigated and the predictions associated with them are listed in section 1.5.3 of the Introduction chapter. The first variable - level of elaboration of the traumatic life event - was operationalised, after Sewell (1996), as the number of non-empty separate construct classes connected to the traumatic event so that the greater the number the more elaborated the event. The HICLAS program produces a graphical display from which one can count the number of non-empty construct classes connected to the traumatic event.

The second variable is the distance of the traumatic event from other life events. As described in Section 2.4.3. the FLEXIGRID program produces a matrix of the distances of each life event from each other life event. These are expressed as a proportion of the 'expected distance' which is a function of the total variation within the grid of the events. So, two events which have a distance value of 0 are co-incident, two elements who have a distance value of less than 1.0 are more similar than would be expected by chance and those whose distance value is greater than 1.0 are less similar than would be expected by chance. The distance of the traumatic event from other life events was therefore operationalised by taking the mean of the distance values of the life event from all the other life events.

The third variable used is the extremity of rating of the traumatic event. An extreme rating for an event was classified as either a '1' or a '6' (i.e. either extreme end of the construct poles). Using the raw data (i.e. the ratings on the grids) the number of extreme ratings for the traumatic event (maximum number 15 for each participant) were counted.

2.6 STATISTICAL ANALYSIS

Given the small size of the sample exploratory data analyses were employed using the SPSS package. Normal p-p plots were used to examine the distribution of the obtained values for each of the variables all of which approximated to the normal distribution using this method. Paired samples t-tests were used for examining predictions 1, 3 and 5. Pearson correlations and single case analyses were used to examine predictions 2 and 4.

3. RESULTS

3.1 SAMPLE CHARACTERISTICS

There were eight men and five women in the sample. The mean age was 32.9 years (SD = 8.95 years, range 19-50 years). Seven of the participants were married or living with a partner, three were divorced or separated and three were single. Four of the participants worked as police officers, two were students, four were unemployed and the remaining three were either on extended sick leave or retired on medical grounds. Table 1 (page 64) illustrates these demographic characteristics of the sample.

Given the small size of sample it was not possible to examine relationships between the categorical variables of sex, marital status and employment status and participants' scores on either the symptom variables or the repertory grid variables (level of elaboration, distance and extremity of rating of the trauma). Scatterplots were used to explore any associations between age of participants and scores on the symptom and grid variables. The scatterplots indicated no associations between these variables for this particular sample.

Table 2 (page 65) lists details of the traumatic event participants experienced, the time elapsed since the traumatic event and information about the length and type of therapy they received. As can be seen the mean length of time which had elapsed since the experience of the traumatic event across participants was 20.4 months. Cognitive Behaviour Therapy was the most predominant form of therapy offered with one participant receiving Eye Movement Desensitisation Reprogramming and two receiving Personal Construct Psychotherapy. Five of the participants dropped out before beginning therapy and one after receiving three sessions. The mean length of therapy across all participants was therefore 4 weeks.

Table 1 -Demographic Characteristics of Sample

Participant	Sex	Age	Marital Status	Employment Status
One	Male	29 years	married	police officer
Two	Female	31 years	married	police officer
Three	Female	26 years	living with partner	police officer
Four	Female	32 years	separated	police officer
Five	Male	34 years	married	unemployed
Six	Male	50 years	divorced	retired
Seven	Male	43 years	divorced	unemployed
Eight	Male	26 years	married	sick leave
Nine	Female	19 years	single	unemployed
Ten	Male	43 years	married	unemployed
Eleven	Male	22 years	single	student
Twelve	Female	33 years	living with partner	student
Thirteen	Male	39 years	single	sick leave

Table 2 - Trauma and Therapy Features of Sample

Participant	Nature of Trauma	Time Elapsed Since Trauma	Type of Therapy	Length of Therapy
One	Army Service in former Yugoslavia	36.0 months	CBT	6.0 weeks
Two	Road traffic accident	12.0 months	PCP	6.0 weeks
Three	Ex-partner's suicide	1.2 months	PCP	5.0 weeks
Four	Counselling a rape victim	4.0 months	EMDR	3.0 weeks *
Five	Road traffic accident	17.0 months	CBT	Dropped out
Six	Attendance at post-mortems	50.0 months	CBT	Dropped out
Seven	Assault	18.0 months	CBT	Dropped out
Eight	Assault	13.0 months	CBT	Dropped out
Nine	Rape	16.0 months	CBT	Dropped out
Ten	Imprisonment in Southeast Asia	14.0 months	CBT	12.0 weeks *
Eleven	National Service in European country	24.0 months	CBT	6.0 weeks *
Twelve	Witness of road traffic accident	6.0 months	GROUP CBT	8.0 weeks
Thirteen	Industrial accident	54.0 months	CBT	3.0 weeks (dropped out)
Mean	-	20.4 months	-	4.0 weeks
SD	-	16.6 months	-	3.9 weeks

Key : CBT = Cognitive Behaviour Therapy ; EMDR = Eye Movement and Desensitisation Reprogramming ; PCP = Personal Construct Psychotherapy ; * = participants for whom post-therapy data was collected

Again, given the small size of the sample, it was not possible to examine any relationships between the two categorical variables of type of trauma and type of therapy and participants scores on symptoms measures and grid variables. However scatterplots were used to identify any potential relationships between both the time elapsed since the trauma and the length of therapy and participants scores on the symptom measures and grid variables. One association was identified from these scatterplots between the time elapsed since the traumatic event and participants scores on the Beck Depression Inventory. Figure 2 (page 67) shows this scatterplot. Given the association indicated a two-tailed Pearson correlation was performed on the data which yielded a correlation coefficient of -0.60, $p < 0.05$. Obviously with such a small sample one cannot be certain of the validity of such an association. However, it suggests that for these participants the longer the time elapsed since the trauma was experienced the lower they were scoring on the Beck Depression Inventory (although most still within the clinical range).

3.2 SYMPTOM SCORES

Table 3 (page 68) illustrates the scores for each participant on interview on the three symptom measures used (Beck Anxiety Inventory, Beck Depression Inventory and the Impact of Events Scale). The scores on the IES are also broken down into their constituent subscales -the Intrusion and Avoidance Subscales.

As seen in Table 3 there was a wide range of scores on the Beck Anxiety Inventory (BAI) across participants. One participant scored within the normal level of anxiety, four within mild levels, two within moderate to severe levels and the remaining six within the severe range (Beck & Steer, 1990). Similarly there was a wide range of scores on the Beck Depression Inventory (BDI) across participants. Two participants scored within the mild range of depression, two within the mild to severe range and the remaining nine within the severe range (Beck & Steer, 1987).

As seen in Table 3 the mean score on the Impact of Events Scale (IES) (total) was 57.31 which is

Figure 2 - Scatterplot Illustrating Association Between the Time Elapsed since the Trauma and Participants' Scores on the Beck Depression Inventory

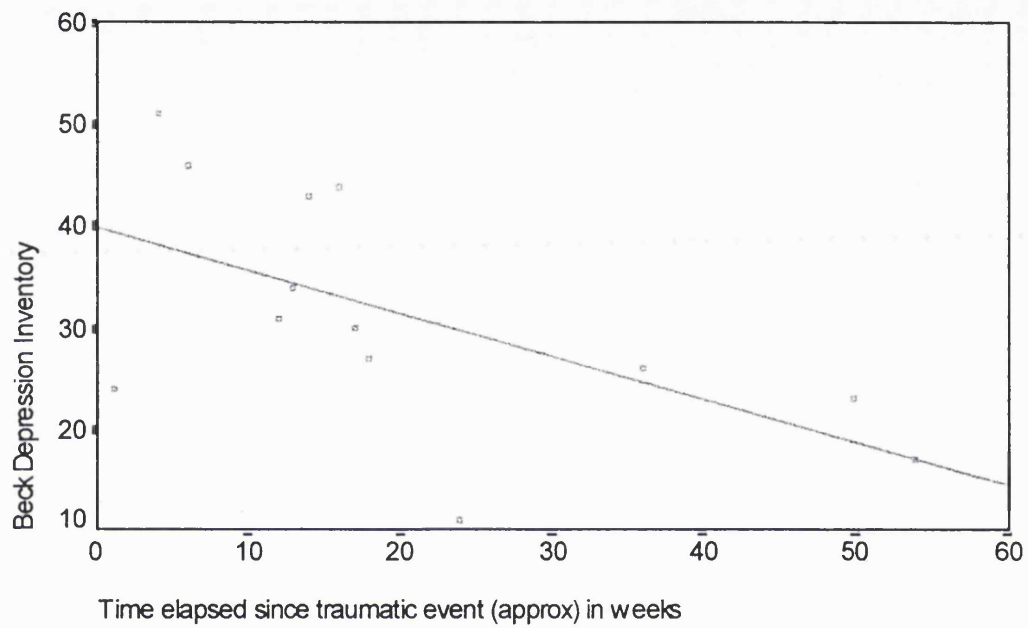


Table 3 - Participants' Scores on Symptom Measures

Participant	Beck Anxiety Inventory	Beck Depression Inventory	Impact of Events Scale (total)	Impact of Events Scale (intrusion)	Impact of Events Scale (avoidance)
One	4.0	26.0	40.0	20.0	20.0
Two	13.0	31.0	59.0	35.0	24.0
Three	25.0	24.0	53.0	23.0	30.0
Four	23.0	51.0	57.0	27.0	30.0
Five	11.0	30.0	50.0	26.0	24.0
Six	35.0	23.0	63.0	29.0	34.0
Seven	30.0	27.0	58.0	31.0	27.0
Eight	35.0	34.0	71.0	35.0	36.0
Nine	34.0	44.0	67.0	35.0	32.0
Ten	30.0	43.0	60.0	35.0	25.0
Eleven	14.0	11.0	49.0	25.0	24.0
Twelve	56.0	46.0	63.0	31.0	32.0
Thirteen	15.0	17.0	55.0	22.0	33.0
Mean	25.00	31.31	57.31	28.77	28.54
SD	13.84	11.89	8.18	5.37	4.86
Range	4 - 56	11 - 51	40 - 71	20 - 35	20 - 36

higher than that for persons attending a clinic for victims of trauma reported by Horowitz et al (1979) (mean score reported was 38.7) and thus indicates high levels of PTSD. All participants demonstrated IES total scores which were higher than Horowitz et al's (1979) reported mean. The mean score on the IES Intrusion subscale was 28.77 which is higher than that for the sample reported by Horowitz et al (1979) (mean score reported was 21.3) and thus indicates high levels of intrusion. The mean score on the IES Avoidance subscale was 28.54 which is higher than that for the sample reported by Horowitz et al (1979) (score reported was 17.4) and thus indicates high levels of avoidance.

Scatterplots were used to explore the data obtained from scores on three symptom measures used. No association between scores on the BDI and the IES (total) was identified from the scatterplot shown in Figure 3 (page 70). This is in contrast to Joseph et al (1994) who found that scores on the Intrusion subscale of the IES at 7 months predicted symptoms of depression in their sample at 19 months.

Associations between scores on the BAI and the IES (total) and the IES subscales could be identified from scatterplots. Figures 4, 5 and 6 (pages 70 and 71) show scatterplots illustrating these associations between scores on the IES (total) and the Intrusion and Avoidance subscales. Given the associations which could be identified from these scatterplots two-tailed Pearson correlations were performed on the data. Thus a correlation co-efficient of +0.76, $p < 0.01$ was obtained for the association between scores on the IES (total) and the BAI. A correlation coefficient of +0.67, $p = 0.01$ was obtained for the association between scores on the IES avoidance subscale and the BAI. Finally a correlation coefficient of +0.55, $p=0.05$ was obtained for the association between scores on the IES intrusion subscales and the BAI. Given the small size of the sample these results should be interpreted with caution, however they do indicate that for this sample, the higher the level of PTSD symptomatology as measured by the IES the higher the levels of anxiety as measured by the BAI. This is in line with Joseph et al's (1994) finding that scores on the IES were correlated with symptoms of anxiety however in contrast they found that scores on the Intrusion subscale were more predictive of levels of anxiety than scores on the avoidance subscale. For this sample the stronger association was between scores on the avoidance subscale and the scores on the BAI.

Figure 3 - Scatterplot Illustrating the Lack of Association Between Participants' Scores on the Impact of Events Scale (total) and the Beck Depression Inventory

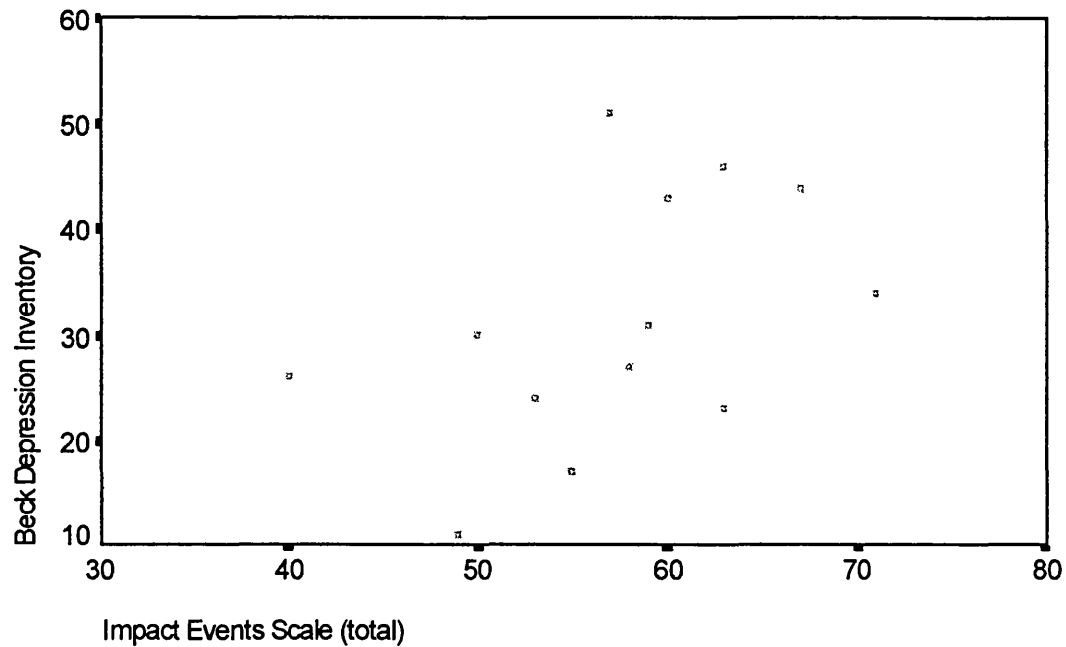


Figure 4 - Scatterplot Illustrating the Association Between Participants' Scores on the Impact of Events Scale (total) and the Beck Anxiety Inventory

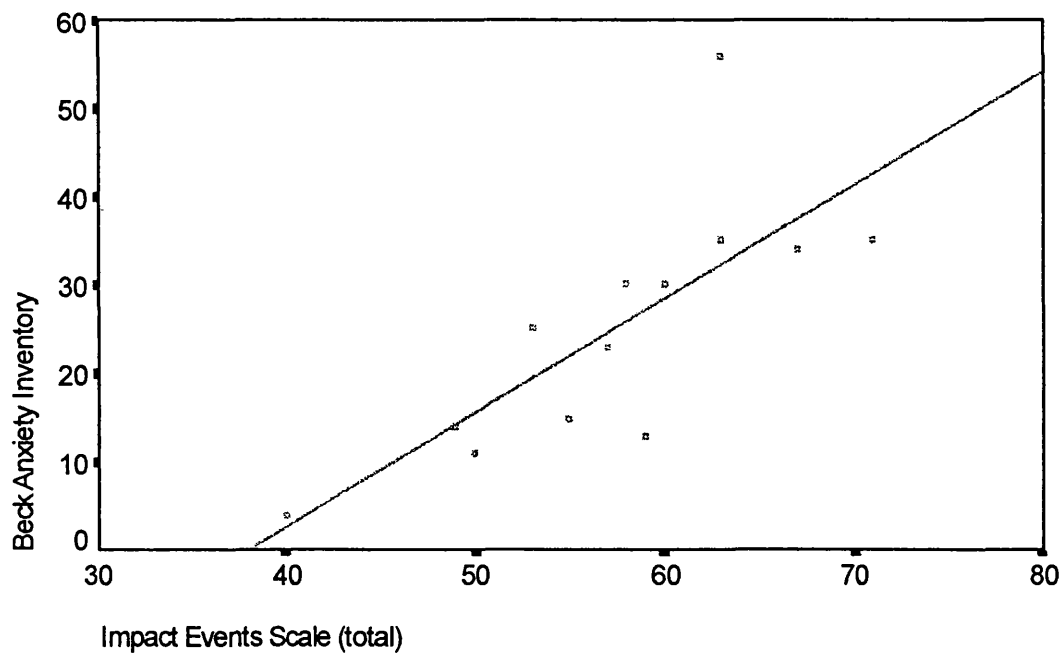


Figure 5 - Scatterplot to Illustrate Association Between Participants' Scores on the Impact of Events Scale (Avoidance) and the Beck Anxiety Inventory

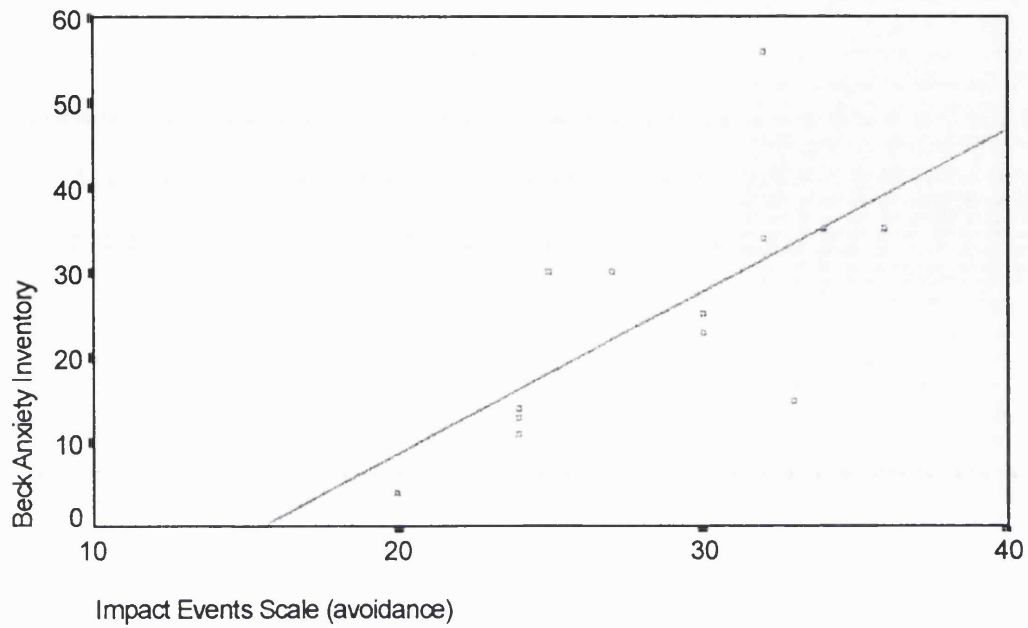
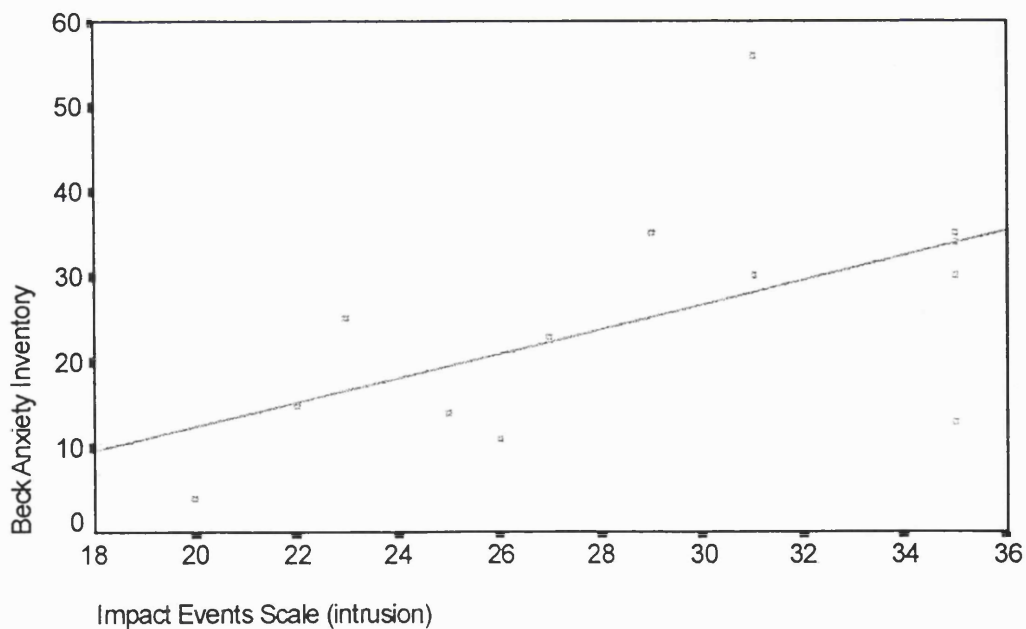


Figure 6 - Scatterplot Illustrating Association Between Participants' Scores on the Impact of Events Scale (Intrusion) and the Beck Anxiety Inventory



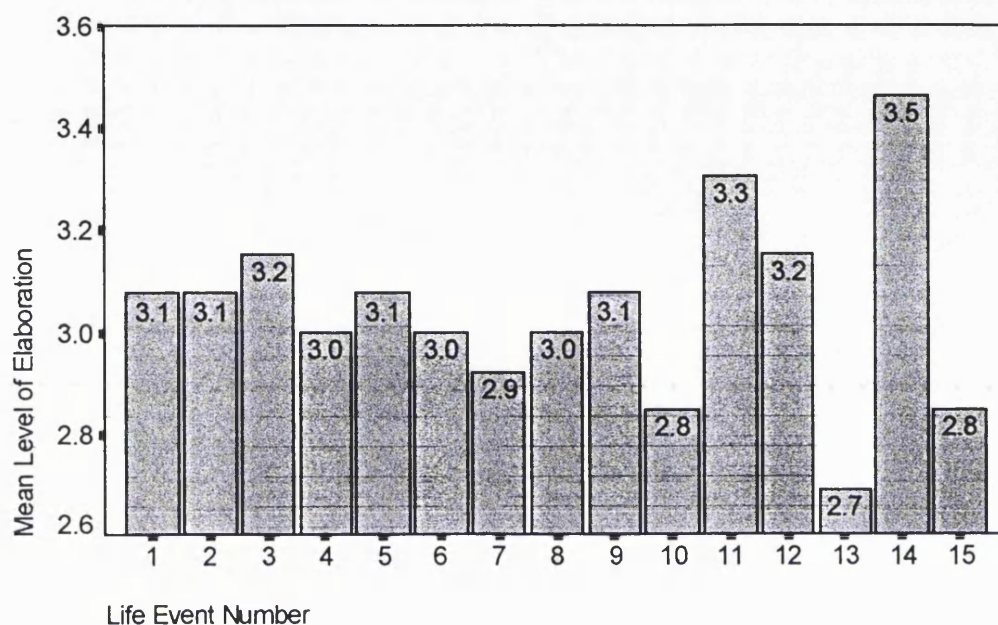
3.3 LEVEL OF ELABORATION OF TRAUMATIC EVENT

Figure 7 (page 73) illustrates the mean level of elaboration at hierarchical rank 5 (mean goodness of fit 0.94, SD = 0.07 - see section 2.5 of the Methods chapter) of each of the fifteen life events across participants. Below there is shown a key which identifies each of the life events - see also Appendix Three. As can be seen the highest mean level of elaboration was for life event number fourteen ("the best thing that could happen to me in the future" - see Appendix Three) at 3.46 (SD= 1.05, range 1-5). The life event with the next highest level of elaboration was in fact, the traumatic event, with a mean level of elaboration across participants at 3.31 (SD = 1.44, range 1-5). The life event which demonstrated the lowest level of elaboration was in fact life event number thirteen ("an event positive or negative which has happened since the traumatic event"). The mean level of elaboration for all life events except the traumatic event across participants was calculated (3.03, SD = 0.52).

Prediction 1 hypothesised that the traumatic event would show the lowest mean level of elaboration compared to other life events. In order to test this a two tailed paired samples t-test was performed comparing the mean level of elaboration of the traumatic event (3.31) with the mean level of elaboration of all other life events (3.03). No significant difference was found between these two means ($t = 0.74$, $p = 0.472$) and thus *prediction 1* was not confirmed.

Prediction 2 hypothesised that there would be a significant association between the level of elaboration of the traumatic event and symptoms of PTSD across participants. Scatterplots were therefore used in order to identify any associations between the level of elaboration of the trauma and scores on the IES (total) and Intrusion and Avoidance subscales. These can be seen in Figures 8, 9 and 10 (pages 74 and 75). As can be seen there is no association between these variables *prediction 2* was therefore not confirmed. In addition scatterplots were used in order to identify any potential relationships between the level of elaboration of the traumatic event and participants scores on the BAI and BDI. These scatterplots can be seen in Figures 11 and 12 (pages 75 and 76). Again as can be seen there were no associations between these variables.

Figure 7- Bar Chart Illustrating the Mean Level of Elaboration for Each Life Event Across Participants



Key : -

Life Event No. Type of Life Event

- 1 The best thing that happened to you in primary school
- 2 The worst thing that happened to you in primary school
- 3 The best thing that happened to you in adolescence
- 4 The worst thing that happened to you in adolescence
- 5 The best thing that happened to you in early adulthood in your professional life
- 6 The best thing that happened to you in early adulthood in your personal life
- 7 The worst thing that happened you in early adulthood in your professional life
- 8 The worst thing that happened to you in early adulthood in your personal life
- 9 The best thing that had happened to you in your life in the last two years
- 10 The worst thing that has happened to you in your life in the last two years
- 11 The traumatic event you have experienced
- 12 An event, positive or negative, that has happened since the traumatic event
- 13 An event, positive or negative, that has happened since the traumatic event
- 14 The best event that could happen to you in the future
- 15 The worst event that could happen to you in the future

Figure 8 - Scatterplot Illustrating Lack of Association Between Level of Elaboration of Traumatic Event Across Participants and Scores on the Impact of Events Scale (total)

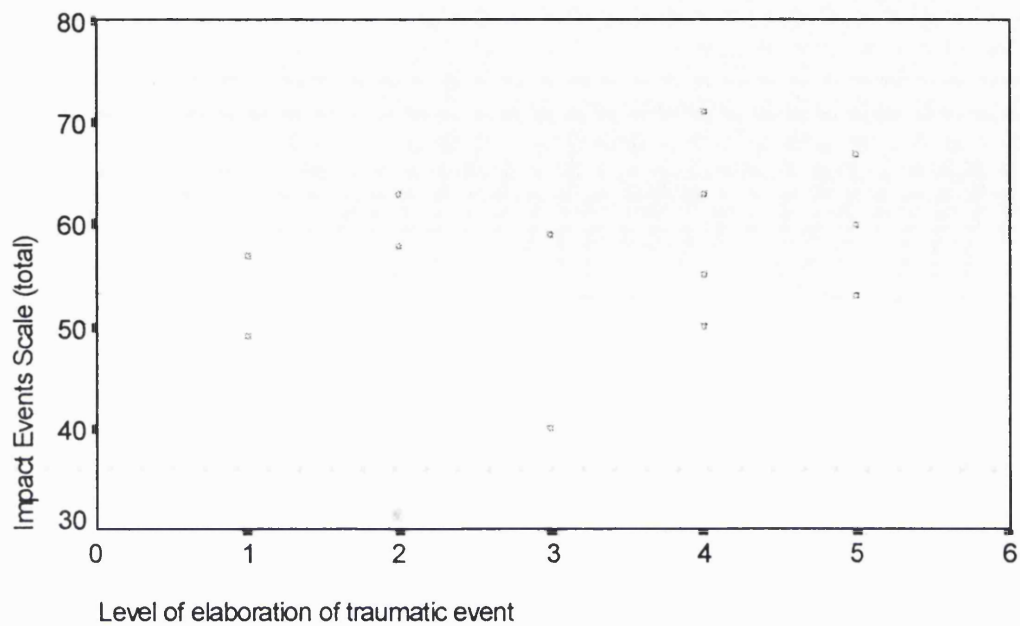


Figure 9 - Scatterplot Illustrating Lack of Association Between Level of Elaboration of Traumatic Event Across Participants and Scores on the Impact of Events Scale (Intrusion)

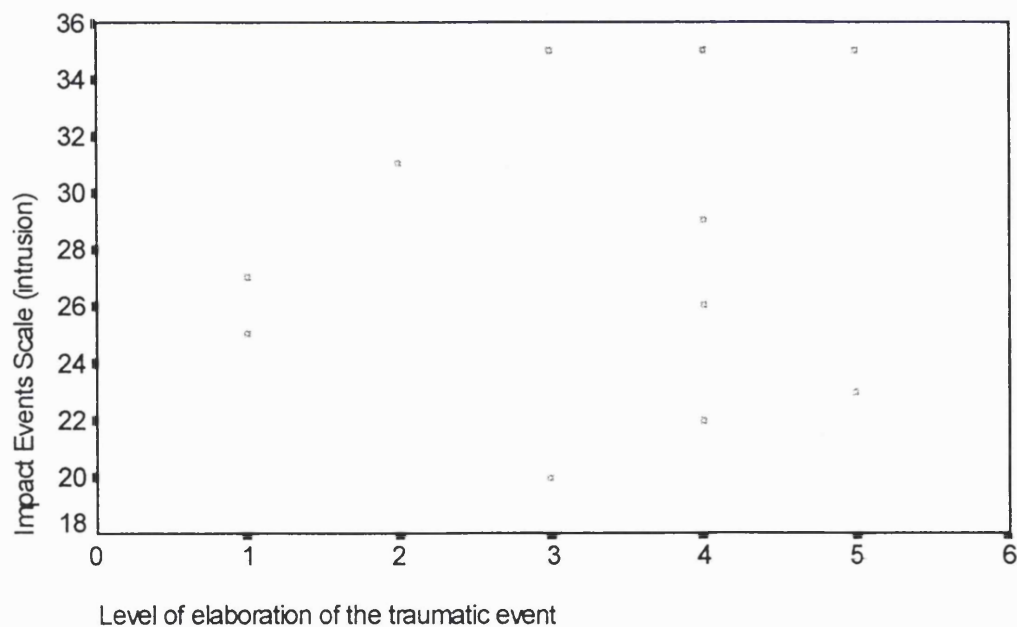


Figure 10 - Scatterplot Illustrating Lack of Association Between Level of Elaboration of Traumatic Event Across Participants and Scores on the Impact of Events Scale (Avoidance)

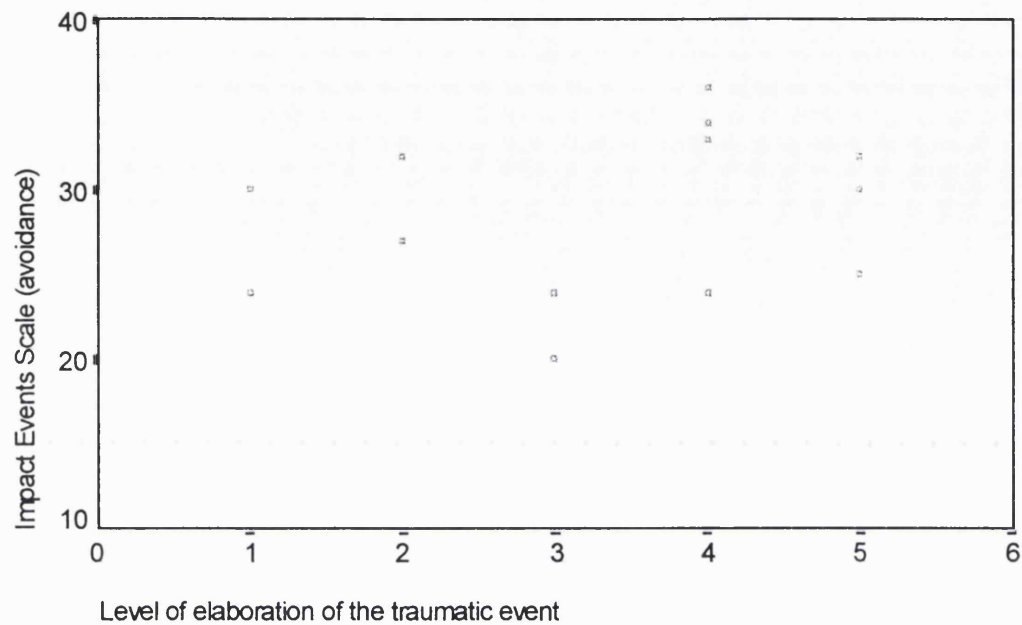


Figure 11 -Scatterplot Illustrating Lack of Association Between Level of Elaboration of Traumatic Event Across Participants and Scores on the Beck Anxiety Inventory

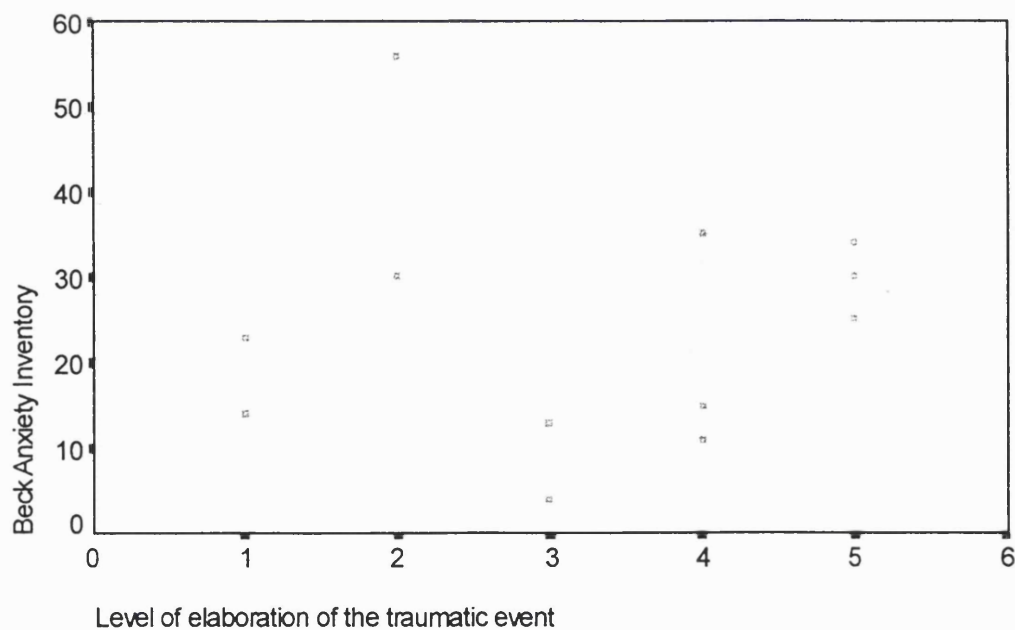
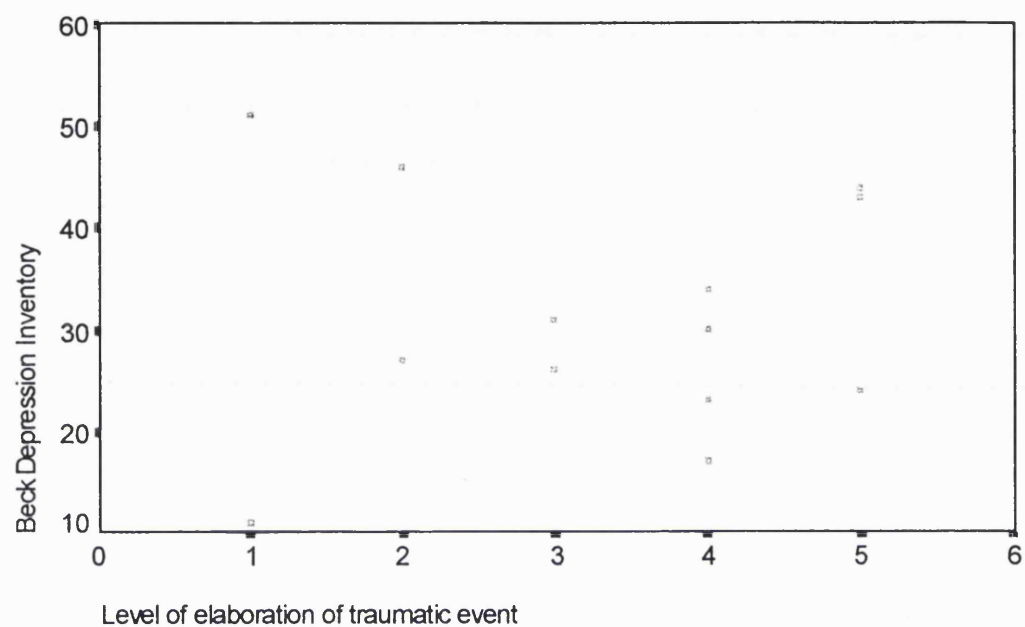


Figure 12 - Scatterplot Illustrating Lack of Association Between Level of Elaboration of the Traumatic Event Across Participants and Scores on the Beck Depression Inventory



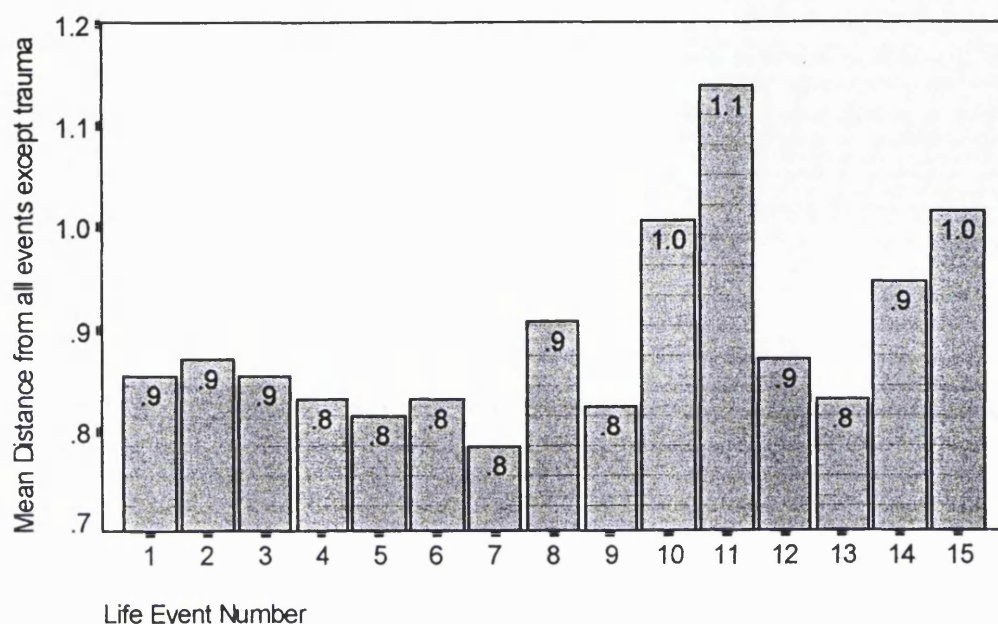
3.4. DISTANCE OF TRAUMATIC EVENT FROM OTHER LIFE EVENTS

Figure 13 (page 78) illustrates the mean distance of each event from all other events across participants. The higher the figure the greater the distance between life events. As can be seen life event number 11, the traumatic event shows the greatest mean distance from all other events (mean 1.14, SD = 0.16, range 0.8-1.3). Life events 10 and 15 show the next greatest mean distance and these life events are “the worst thing that has happened to me in the last two years” (which was often something associated with the traumatic event) and “the worst thing which could happen to me in the future” (which was often a feared repetition of the traumatic event), respectively. Obviously one can see that these life events are also, like the traumatic event construed as distant from other life events. The mean distance of all non-trauma events from each other was also calculated (mean 0.87, SD = 0.05).

Prediction 3 hypothesised that the traumatic event would show the greatest distance from all life events than any other life event. In order to test this a two-tailed paired samples t test was performed to compare the mean distance of the traumatic event from all other events (1.14) with the mean distance of all non-trauma events from each other (0.87) across participants. A significant difference was found between these two means ($t = 5.41$, $df 12$, $p < 0.001$). This would indicate that *prediction 3* is confirmed. However, given the small size of sample this result should be interpreted with caution given the possibility of a Type I error even with this relatively high significance level.

Scatterplots were constructed to identify any relationships between this variable (distance of traumatic events from all other life events) and scores on the symptom measures. Figures 14 and 15 (page 79) illustrate scatterplots of the distance of the traumatic event from all other life events and scores on the Beck Anxiety Inventory and the Beck Depression Inventory respectively. As can be seen there are no associations between these variables.

Figure 13 - Bar Chart Illustrating the Mean Distance of Each Life Event from All Other Life Events Across Participants



Key : -

Life Event No. Type of Life Event

- 1 The best thing that happened to you in primary school
- 2 The worst thing that happened to you in primary school
- 3 The best thing that happened to you in adolescence
- 4 The worst thing that happened to you in adolescence
- 5 The best thing that happened to you in early adulthood in your professional life
- 6 The best thing that happened to you in early adulthood in your personal life
- 7 The worst thing that happened to you in early adulthood in your professional life
- 8 The worst thing that happened to you in early adulthood in your personal life
- 9 The best thing that had happened to you in your life in the last two years
- 10 The worst thing that has happened to you in your life in the last two years
- 11 The traumatic event you have experienced
- 12 An event, positive or negative, that has happened since the traumatic event
- 13 An event, positive or negative, that has happened since the traumatic event
- 14 The best event that could happen to you in the future
- 15 The worst event that could happen to you in the future

Figure 14 - Scatterplot to Illustrate Lack of Association Between the Distance of the Traumatic Event from other Life Events and Participants' Scores on the Beck Anxiety Inventory

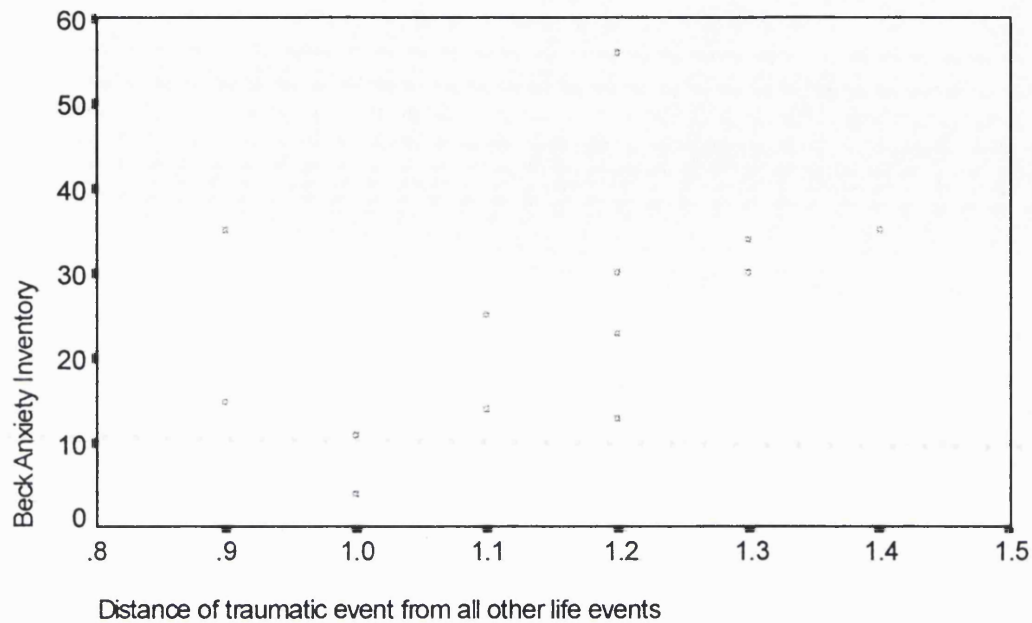
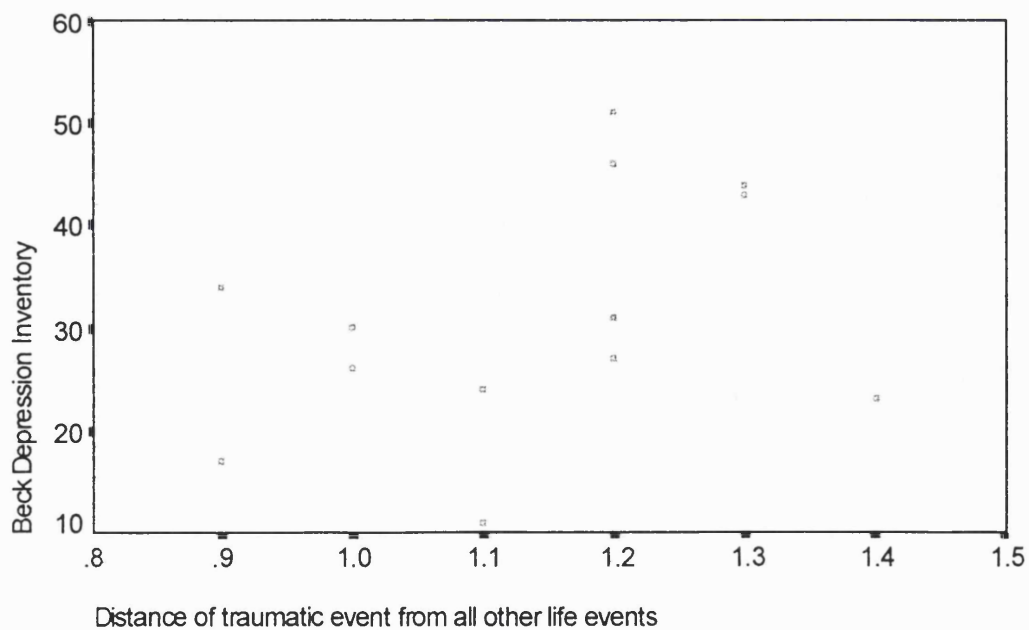


Figure 15 - Scatterplot to Illustrate Lack of Association Between Distance of Traumatic Event from all other Life Events and Participants' Scores on the Beck Depression Inventory



Prediction 4 hypothesised that there would be a significant association between the Pythagorean distance of the traumatic event from all other life events and symptoms of PTSD across participants. Scatterplots were constructed to examine the relationship between the distance of the traumatic event from other life events across participants and scores on the Impact of Events Scale. Figure 16 (page 81) illustrates the scatterplot between the distance variable and scores on the IES (total). As can be seen no association is indicated. Figure 17 (page 81) illustrates the scatterplot between the distance variable and participants' scores on the Avoidance subscale of the IES, again no association is indicated. Finally Figure 18 (page 82) illustrates the scatterplot between the distance variable and participants' scores on the Intrusion subscale of the IES. As can be seen an association between these two variables is indicated. Given the direction of research prediction 4 a one-tailed Pearson correlation was performed on the data which yielded a correlation co-efficient of $+0.47$, $p=0.05$. Again, with such a small sample one cannot be certain of the validity of such an association and therefore **prediction 4** cannot be confidently confirmed. However the result suggests that the higher the distance of the traumatic event from all other events across participants the greater their score on the Intrusion subscale of the IES, although the causal direction cannot be determined.

3.4.1 Single Case Analyses

The association between these two variables is examined in further detail with the use of single case analysis. Identified on the scatterplot (Figure 18, page 82) are four data points representing four of the participants in the study. These four are chosen in order to illustrate cases which are indicative of the proposed relationship between the distance variable and scores on the Intrusion subscale and those which contradict it.

Participants 1 and 5 were selected because they both demonstrate a relatively low distance of the traumatic event from other life events but indicate differing scores on the Intrusion subscale with participant 5's score lying on the correlation line but participant 1's representing an outlier. Similarly

Figure 16 - Scatterplot to Illustrate Lack of Association Between the Distance of the Traumatic Event from other Life Events and Participants' Scores on the Impact of Events Scale (total)

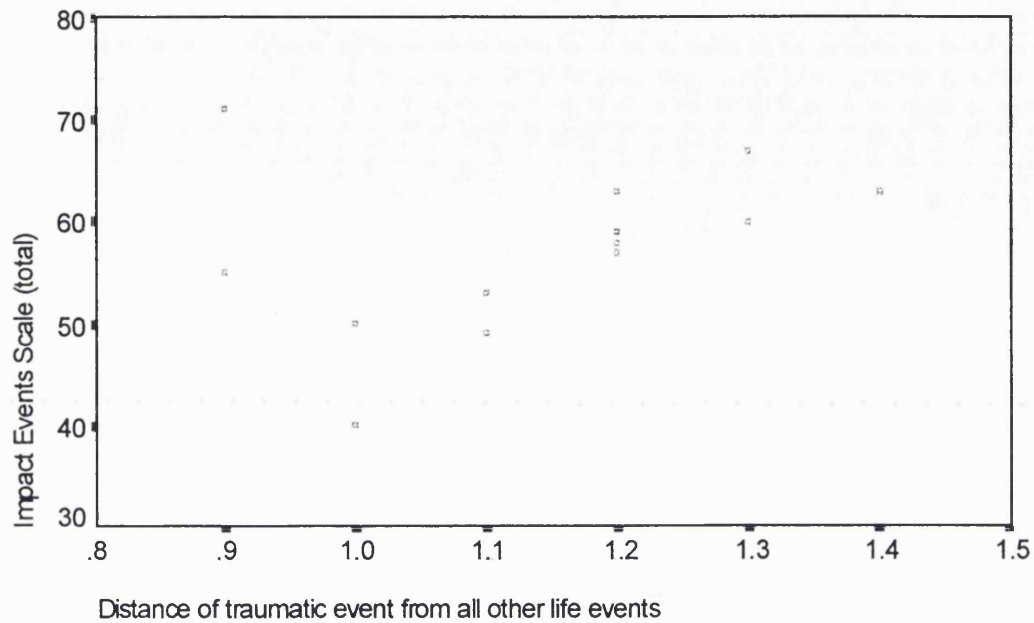


Figure 17 - Scatterplot to Illustrate Lack of Association Between Distance of Traumatic Event from all other Life Events and Participants' Scores on the Impact of Events Scale Avoidance Subscale

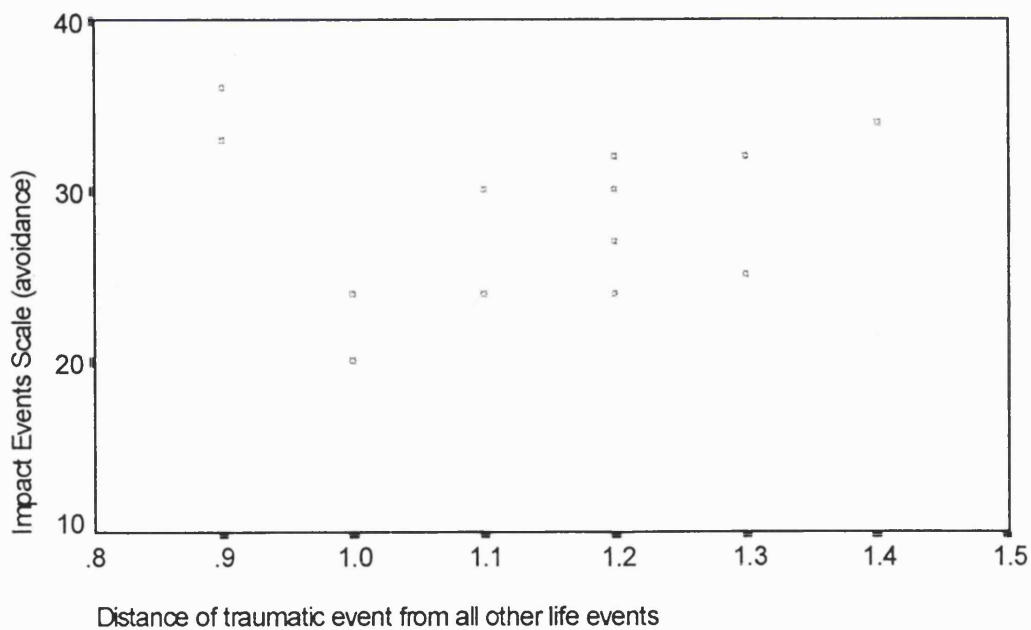


Figure 18 - Scatterplot to Illustrate Association Between Distance of Traumatic Event from all Other Life Events and Participants' Scores on the Impact of Events Scale Intrusion Subscale

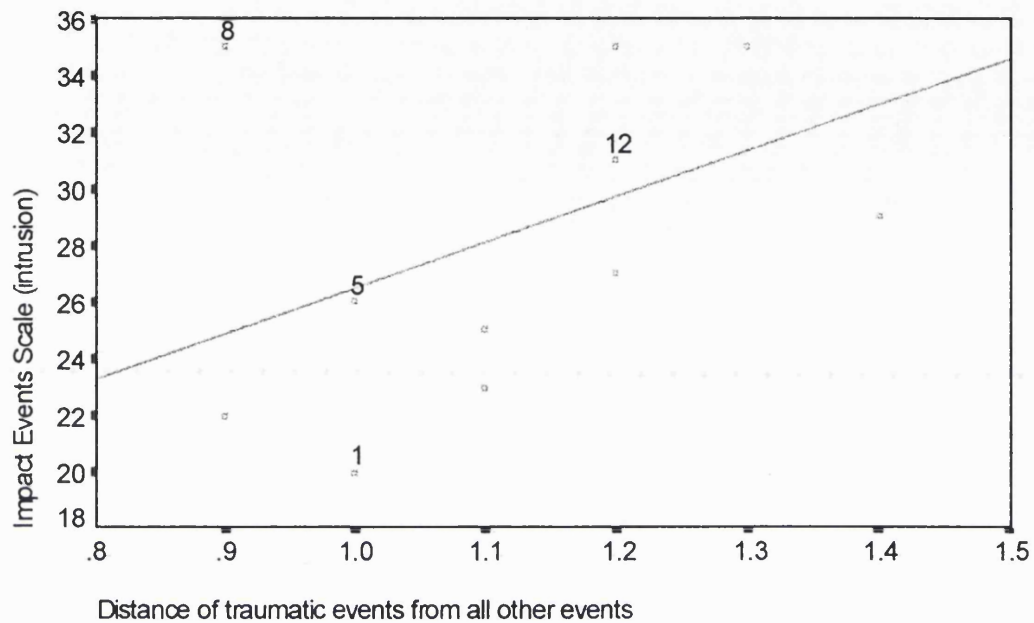


Table 4 - Scores on the Impact of Events Scale, Distance Variable and Results of Principal Component Analysis for Single Case Analysis Participants Identified on Figure 17

Participant	IES Score Total	IES Score Intrusion	IES Score Avoidance	Distance of Trauma from other events	PCA 1st Component	PCA 2nd Component
One	40	20	20	1.0	71.09%	13.49%
Five	50	26	24	1.0	48.35%	22.87%
Eight	71	35	36	0.9	90.23%	4.75%
Twelve	63	31	32	1.2	71.59%	13.48%

participants 8 and 12 both demonstrate high scores on the Intrusion subscale but whereas participant 12 exhibits a high distance of the trauma from other life events participant 8 does not. Table 4 (page 82) illustrates these four participants' scores on the IES, the distance of their trauma from other life events and the results of a principal component analysis on their grid matrices (explained below).

Using the FLEXIGRID program (Tschudi, 1984) plots of participants' elements (life events) in construct space can be created allowing one to examine how elements and constructs are related to each other. For each of these four participants there follows diagrams to illustrate plots of their life events and associated constructs. The plots are of the life events in construct space and the program configures them by performing a Principle Component Analysis (PCA) on the grid matrix to identify the two main components by which the person construes (analogous to factors in a factor analysis). The position of each of the life events is therefore determined by the values of its' loadings on the two main components and as such is an approximation based on the percentage of variation accounted for by the principal component in the grid matrix. Winter (1992) suggests that when interpreting these plots as a general rule it can be surmised that those elements (life events) which are furthest removed from the centre of the plot are the most extremely construed and that elements in opposing quadrants are considered to be the most dissimilar.

Figure 19 (page 85) illustrates the plot of participant 1's construct system whose traumatic event had been a tour of duty in the former Yugoslavia when he had been in the army. As can be seen from the scatterplot (Figure 18) and table 4 (page 82) this participant demonstrated a Pythagorean distance value of the trauma from other life events of 1.0. He has a correspondingly low IES score both Total and on the Intrusion Subscale as indicated on the scatterplot.

On the plot (Figure 19, page 85) selected life events are shown in bold and selected constructs are shown in italics. The first component in the PCA is represented by the horizontal axis which for participant 1 differentiates between events that are 'nice' and 'pleasurable' and associated with 'achievement' and 'hopes' and those which are 'massively negative' and associated with 'death & suffering', 'guilt' and 'failure'. For participant 1 this is his main dimension of construing accounting

for 71.09% of the variance in his grid matrix (see Table 4, page 82). The second main component of the PCA is represented by the vertical axis and differentiates between events that are associated with 'moving on' as opposed to those which are construed as 'can't achieve'. This second component would appear to be a less important way of construing the world as it only accounts for 13.49% of the variance in the grid matrix.

As can be seen the traumatic event is located in the bottom right quadrant of the plot. It is clustered close to three other life negative life events within that quadrant and over the plot as a whole appears to be positioned quite closely to other life events. Similarly it is located near to the centre of the plot and is therefore not being construed particularly extremely on either of the two main dimensions. This may account for the relatively low distance of the trauma from other life events calculated from the grid to be 1.0 (see Table 4, page 82). The life events which the trauma is furthest from are those in the top left quadrant of the grid - the participant's marriage and being able to 'put the past in the past' (for this participant the best thing that could happen to him in the future) events which one can take as being clearly differentiated from the trauma in terms of construing by this participant.

Participant 1's scores on the IES were much lower than would be predicted by the correlation line. It is possible that this is because the trauma was not being construed very extremely therefore this participant's symptoms were low as measured by the Intrusion subscale. In fact after receiving some initial sessions of therapy for PTSD it transpired that this participant construed his difficulties mainly in terms of his relationship with his wife and was referred for couple therapy. In retrospect such a participant might have been justifiably excluded on these grounds however this would have reduced the sample size even further. The fact that the trauma is clustered around other life events might also indicate that it is perhaps more integrated and therefore not directly related to scores on the Intrusion subscale. Indeed the life event which this participant seems to construe most extremely is being able to put the past in the past which is seen as something both 'nice' and associated with a sense of 'achievement' and 'life' but is also construed extremely on the second component as associated with 'can't achieve'. This life event had a distance value from all other life events of 1.1 which is greater than that of the traumatic event indicating that this event was seen as more distant from other life

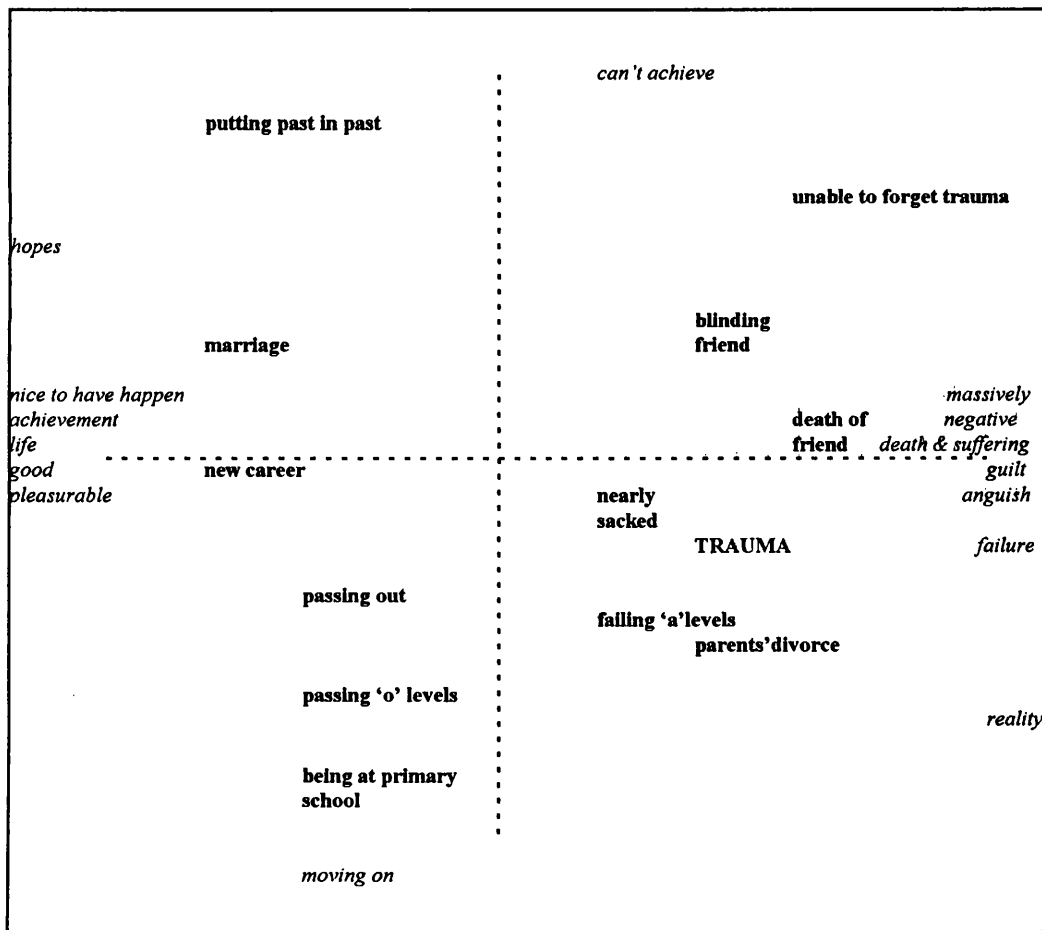


Figure 19 - Plot of Life Events in Construct Space for Participant 1

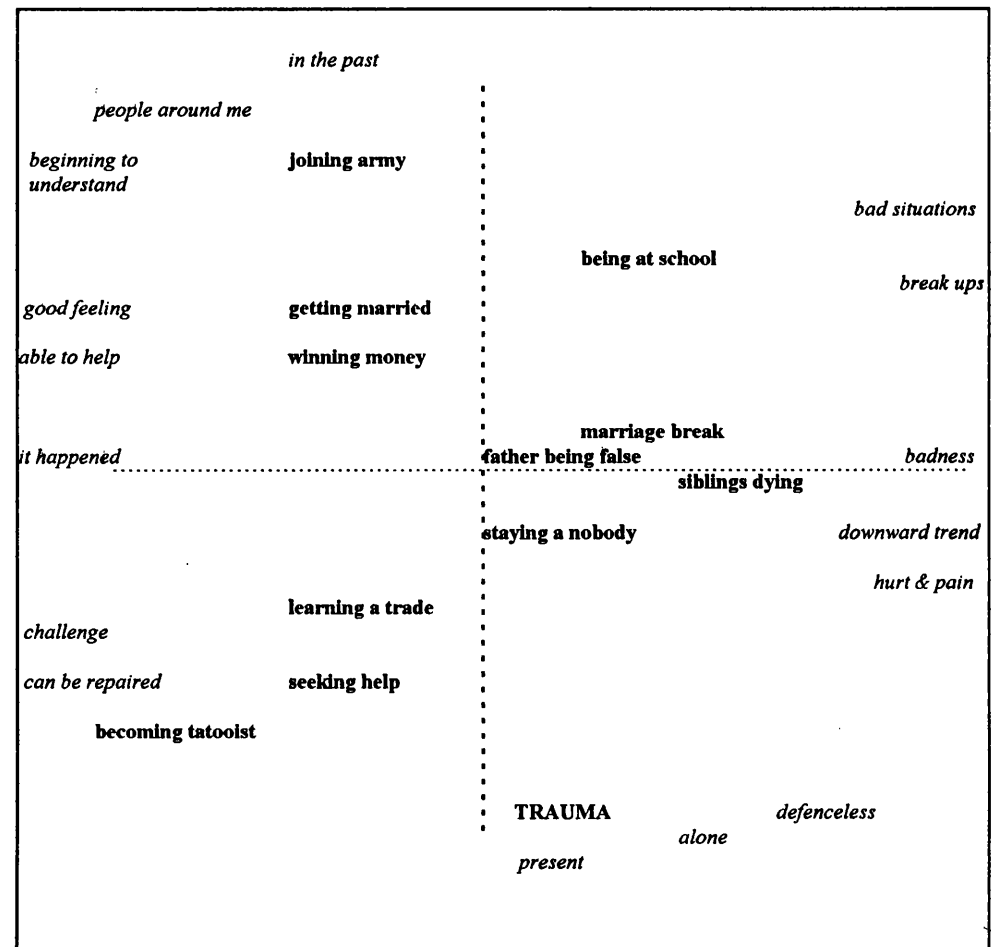


Figure 20 - Plot of Life Events in Construct Space for Participant 5

Key : Horizontal axis = Component 1 ; Vertical Axis = Component 2

Life Event are shown in bold ; Constructs are shown in italics

events (and therefore, according to the hypothesis, less integrated) than the trauma itself for participant 1.

Figure 20 (page 85) illustrates the plot of participant 5's grid matrix whose traumatic event was a road traffic accident. As can be seen from the scatterplot (Figure 18) and Table 4 (page 82) this participant demonstrated a similar Pythagorean distance of the trauma from other life events (1.0) to participant 1 but shows a higher score on the IES overall and particularly the Intrusion subscale the latter lying very close to the correlation line.

On the plot (Figure 20, page 85) selected life events are shown in bold and selected constructs are shown in italics. The first component in the PCA is represented by the horizontal axis and appears to differentiate between events which are construed as 'good' and where he feels 'able to help' and a sense of things which are able to be 'repaired' and those which are seen as associated with 'badness', 'hurt and pain' and 'break-ups'. This component accounts for 48.35% of the variance in participant 5's grid (Table 4, page 82). The second main component accounting for 22.87% of the variance seems to differentiate between events which are 'in the past' and associated with 'beginning to understand' and 'people around me' as opposed to those which are associated with things in the 'present' and feeling 'alone' and 'defenceless'. Compared to participant 1, this participant has a less uni-dimensional means of construing the world.

As can be seen from Figure 20 (page 85) the traumatic event is located in the bottom right quadrant of the plot. It is not clustered near to any other events in this quadrant but would appear to be positioned relatively closely to events in the bottom left quadrant. The trauma does not seem to be being construed very extremely on the first component (horizontal axis) which differentiates between 'badness' and 'good' as when examining its position on this dimension it is relatively close to the centre of the grid. However it is extremely construed on the second (vertical axis) as being in the 'present' and associated with feeling 'alone' and 'defenceless' but shares this with other events in the lower left quadrant that are events also located in the present but also ones which are construed on the 'good feeling' side of the first component (horizontal axis). In contrast events construed extremely on

the second dimension in the opposing quadrant (upper left) are seen as 'in the past' having 'people around me' and 'beginning to understand'.

Participant 5's scores on the IES and the intrusion subscale were higher than those for participant 1 despite their similar level of distance of trauma from other life events. It is unclear why this should be so however, for participant 5 it can be seen that although his trauma is relatively close to other life events in the adjacent quadrant and is not being construed extremely on the first component (which might explain the lower distance value) it is being construed extremely on the second component. Although this second component accounts for less of the variance than the first it is possible that this extreme construing means that the traumatic event is being construed extremely at least in some way by this participant hence the higher score on the IES Intrusion subscale than for participant 1.

Figure 21 (page 89) illustrates the plot of participant 8's construct system whose traumatic event had been an assault. The scatterplot (Figure 18, page 82) shows that this participant's value on the distance variable was one of the lowest at 0.9 however his score on the IES overall and the Intrusion subscale in particular was one of the highest and as such is a clear outlier.

Again, on the plot (Figure 21, page 89) selected life events are shown in bold and constructs are shown in italics. The first component in the PCA is represented by the horizontal axis and for this participant seems to differentiate between events that are 'very unpleasant' and 'upsetting' and associated with feeling 'disgraced' and events which are 'good things', 'laughs' and associated with 'pleasure' and 'pride'. As can be seen in Table 4 (page 82) this component accounts for 90.23% of the variance in this participant's grid. The second component represented by the vertical axis would appear to differentiate between events that are construed as 'easy' as opposed to those which are construed as 'difficult'. However, this second component only accounts for 4.75% of the variance in the grid (see Table 4, page 82) and as such is not a particularly useful alternative to the main component. This participant's grid is an example of very 'tight' construing. He only has one really viable way of making sense of the world and therefore if this is invalidated he has little to fall back on.

Tightness of construing is often an attempt to make the world more easily predictable and stable however the disadvantage is the lack of adaptability that it also brings (Fransella & Dalton, 1990).

As can be seen the traumatic event is located in the bottom right quadrant. It is clustered very close to two other negative life events and overall is relatively close to other life events in the plot. Participant 1's trauma (Figure 19, page 85) was also located close to other life events but participant 8's as can be seen from this plot (Figure 21, page 89) exhibits a tighter clustering hence one could conclude, the lower distance value of 0.9 for participant 8. Similarly, the trauma is not being construed extremely on either of the dimensions being located nearer to the middle of the plot than participant 5's trauma.

One would expect in line with the research hypotheses that this participant, given that the traumatic event is not being construed as particularly distant from other life events, that he would have quite a low score on the IES. However, he has one of the highest scores, especially on the Intrusion Subscale (see Figure 18 and Table 4, page 82). Such a result is difficult to explain and contradicts the research hypothesis. Again if a bigger sample size had been obtained it might have been appropriate to exclude such an outlier from the analysis.

Finally, Figure 22 (page 89) illustrates the plot of participant 12's grid matrix whose traumatic event was witnessing a fatal road accident. As can be seen from the scatterplot and table (Figure 18 and Table 4, page 82) this participant had quite a high distance value of 1.2 and a correspondingly high IES Intrusion Subscale score in line with the research hypothesis.

The plot shows selected life events in bold and selected constructs in italic. The first component in the PCA represented by the horizontal axis differentiates between events that are 'positive' and 'inspiring' and are about 'having control' and 'happiness' and those which are 'hideous' and associated with 'loss' and 'feeling shattered'. Again this is her main dimension of construing accounting for 71.59% of the variance in her grid. The second component represented by the vertical axis differentiates between events that are 'not important' and 'easy going' as opposed to those which are construed as 'very important' and associated with 'strong feelings'. This component accounts for

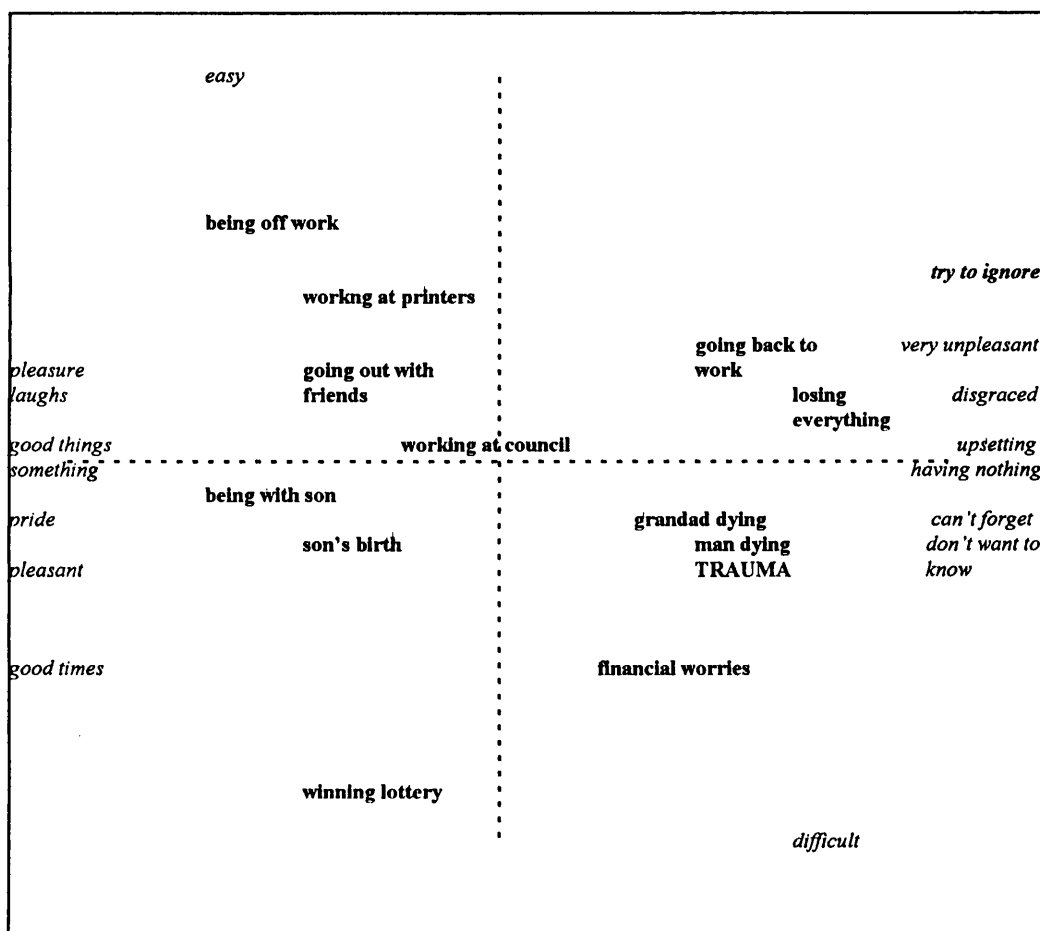


Figure 21 - Plot of Life Events in Construct Space for Participant 8

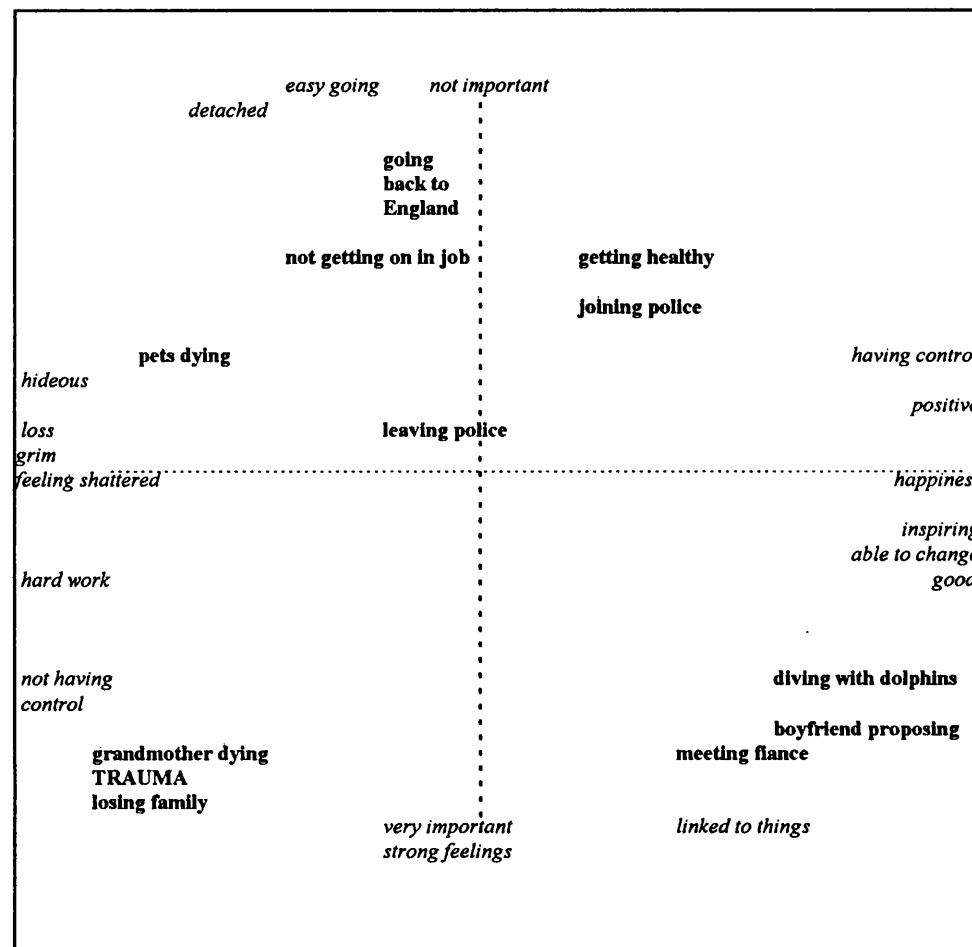


Figure 22 - Plot of Life Events in Construct Space for Participant 12

Key : Horizontal axis = Component 1 ; Vertical axis = Component 2

Life Events are shown in bold ; Constructs are shown in italics

13.48% of the variance in the grid and as such is a less important means of making sense of events in the world.

As can be seen on Figure 22 (page 89) the trauma is located in the bottom right quadrant of the plot clustered with two other negative life events. However, even though the trauma is clustered to these events its distance from all of the other life events in the plot is considerable. This could explain why the distance variable value for this participant is greater than that for participant 5 (Figure 20, page 85) whose trauma had no other life events clustered close to it but who overall had a plot which showed that the trauma was relatively close to other life events in comparison to this participant.

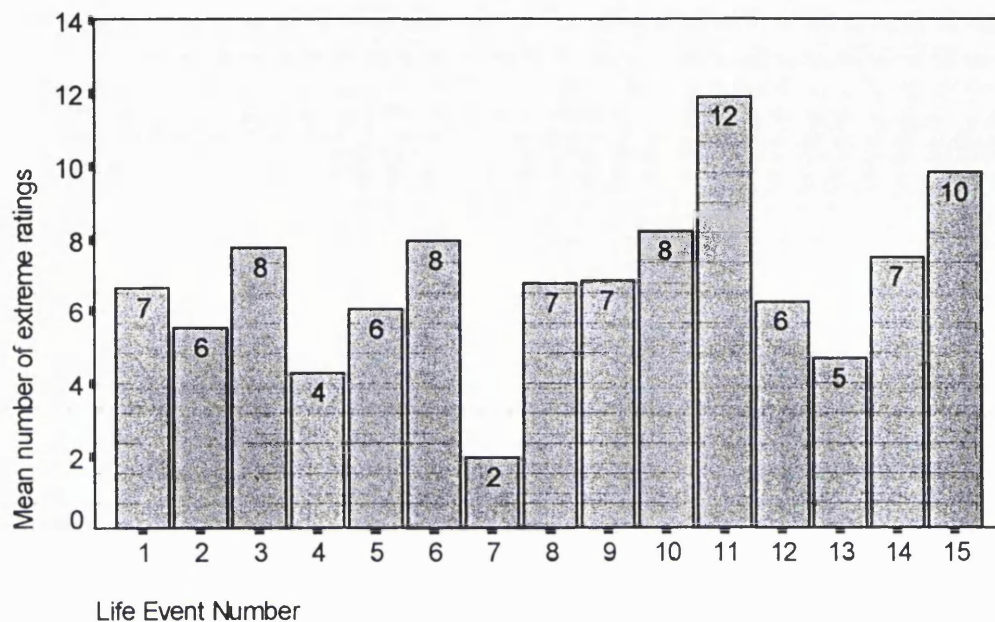
The trauma is also being construed extremely on both of the PCA dimensions as being extremely 'grim', associated with 'loss', 'very important' and about 'not having control'. This extremity of construing and the distance of the trauma from other life events, according to the hypothesis would account for this participant's high score on the Intrusion subscale of the IES. Events in the lower right quadrant are also being construed extremely as 'very important' and associated with 'strong feeling', like the trauma. However, unlike the trauma these events are construed extremely at the more positive end of the first main component (the horizontal axis). Those events which are construed most differently from the trauma are those in the top right quadrant and are construed again at the positive end of the first component and as 'not important' and associated with feeling 'easy going' and 'detached' in terms of the second component (vertical axis).

3.5 EXTREMITY OF RATINGS OF LIFE EVENTS

Figure 23 (page 92) illustrates the mean number of extreme ratings (i.e. a “1” or a “6” - see section 2.5 of Method chapter) across participants for each Life Event. As can be seen the greatest mean number of extreme ratings across participants is for Life Event 11 which is the traumatic event (mean 11.92, SD = 4.19, range 4-15. Life event number 15 (‘the worst thing which could happen to me in the future’) - often a repetition of the traumatic event - was the event with the next highest mean number of extreme ratings. The event with the lowest mean number of extreme ratings was Life Event 7 (‘the worst thing which happened to me in early adulthood in professional life’). The mean number of extreme ratings across participants for all events except the traumatic event was calculated (mean 6.45, SD = 2.53).

Prediction 5 hypothesised that the traumatic life event would be rated more extremely than all other life events. To test this prediction a two-tailed paired samples t-test was performed in order to compare the mean number of extreme ratings across participants for the traumatic event (11.92) with the mean number of extreme ratings across participants for all events except the traumatic event (6.45). A significant difference was found between these two means ($t = 4.64$, $p = 0.001$) thus providing some support for *prediction 5*.

Figure 23 - Bar Chart Illustrating the Mean Number of Extreme Ratings for Each Life Event Across Participants



Key :-

Life Event No. Type of Life Event

- 1 The best thing that happened to you in primary school
- 2 The worst thing that happened to you in primary school
- 3 The best thing that happened to you in adolescence
- 4 The worst thing that happened to you in adolescence
- 5 The best thing that happened to you in early adulthood in your professional life
- 6 The best thing that happened to you in early adulthood in your personal life
- 7 The worst thing that happened you in early adulthood in your professional life
- 8 The worst thing that happened to you in early adulthood in your personal life
- 9 The best thing that had happened to you in your life in the last two years
- 10 The worst thing that has happened to you in your life in the last two years
- 11 The traumatic event you have experienced
- 12 An event, positive or negative, that has happened since the traumatic event
- 13 An event, positive or negative, that has happened since the traumatic event
- 14 The best event that could happen to you in the future
- 15 The worst event that could happen to you in the future

3.6 DESIGNATION OF NON-POSITIVE CONSTRUCT POLES

As described in Section 1.5.2 of the Introduction chapter (page) the designation of the non-positive constructs poles by participants was examined. They were asked to indicate which pole of each constructs they considered to be 'positive' and whether they felt the other to be 'negative' (which would perhaps indicated more 'black and white thinking') or whether they felt the other to be 'just less positive' (perhaps indicating more 'shades of grey' thinking). Table 5 (page 94) shows the number of non-positive construct poles designated as "negative" and the number designated as "just less positive" for each participant's repertory grid. As can be seen the total number of non-positive construct poles designated as "negative" for all participants is 178 and the total number of non-positive construct poles designated as "just less positive" for all participants is much less at 17. This would indicate more 'black and white thinking' however, in the absence of an adequate control (i.e. in terms of a normal comparison or a post-therapy comparison) the importance of such a finding cannot be judged. No statistical analyses were performed on the data.

Table 5 - Number of Non-Positive Construct Poles Designated as “Negative” or “Just Less Positive” for Each Participant

Participant	Number of Non-Positive Construct Poles designated as “Negative”	Number of Non-Positive Construct Poles designated as “Just Less Positive”
One	13	2
Two	13	2
Three	15	0
Four	14	1
Five	13	2
Six	13	2
Seven	13	2
Eight	15	0
Nine	15	0
Ten	13	2
Eleven	15	0
Twelve	12	3
Thirteen	14	1
Total	178	17

3.7 CASE ILLUSTRATIONS OF PARTICIPANTS FOR WHOM POST-THERAPY DATA WAS AVAILABLE

As noted post-therapy data was available for three participants. Using the FLEXIGRID program (Tschudi, 1984) plots of their elements in construct space were created from the before and after therapy repertory grid matrices. As described earlier these plots are of the elements (life events) in construct space and the program configures them by performing a principal component analysis (PCA) on the grid matrix to identify the two main components by which the person construes (analogous to a factor analysis). The position of each element is therefore defined by the values of its loadings on the two main components and as such is an approximation based on the percentage of variation accounted for by the first component in the PCA of the grid matrix. Again, as described earlier, Winter (1992) suggests that when interpreting these plots as a general rule it can be surmised that those elements/life events which are furthest removed from the centre of the plot are the most extremely construed and that elements in opposing quadrants are considered to be the most dissimilar.

In addition to the plots being presented the scores of each of these three participants on the symptom measures and the two main grid variables (level of elaboration of the traumatic event and distance of the traumatic event from all other events) are displayed in Tables 6 and 7 (page 96) respectively. Values from the Principal Component Analyses before and after therapy are presented in Table 8 (page 96). These scores will be related to the plots of the participants' construct systems.

3.7.1 Participant Four Pre and Post Therapy

Figure 24 (page 97) illustrates plots of participant 4's construct system before and after therapy. The trauma for this participant was counselling a wife who had been raped by her husband and she received EMDR. Selected life events are shown in bold and selected constructs are shown in italics. The horizontal axis corresponds to the first component in the PCA and the vertical axis corresponds to the second component.

Table 6 -Scores on Symptom Measures Before and After Therapy for those Participants for whom Post-Therapy Data was Available

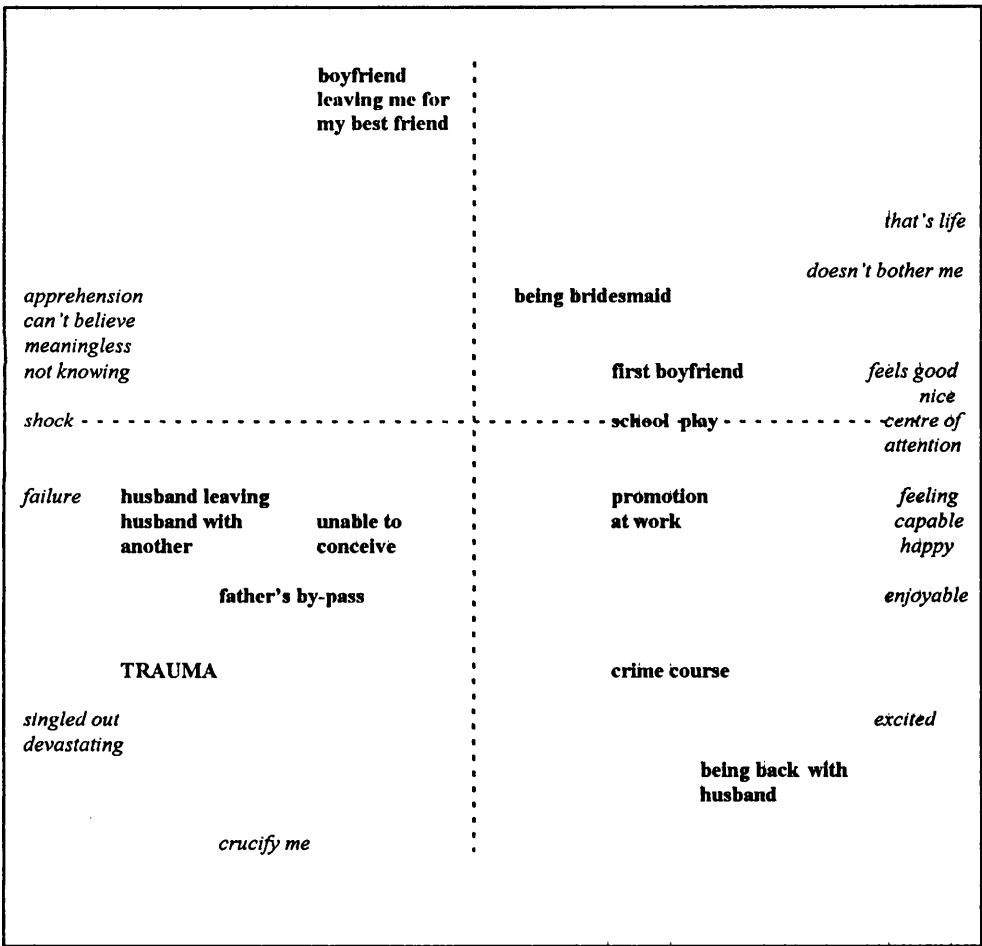
Participant	BAI Score		BDI Score		IES Score Total		IES Score Intrusion		IES Score Avoidance	
	Pre	Post	Pre	Post	Pre	Post	Pre	Post	Pre	Post
Four	23.0	5.0	51.0	7.0	57.0	0.0	27.0	0	30.0	0
Ten	30.0	8.0	43.0	17.0	60.0	10.0	35.0	6.0	25.0	4.0
Eleven	14.0	4.0	11.0	1.0	49.0	0.0	25.0	0	24.0	0

Table 7 - Elaboration and Distance Variable Values Pre and Post-Therapy for those Participants for whom Post-Therapy Data was Available

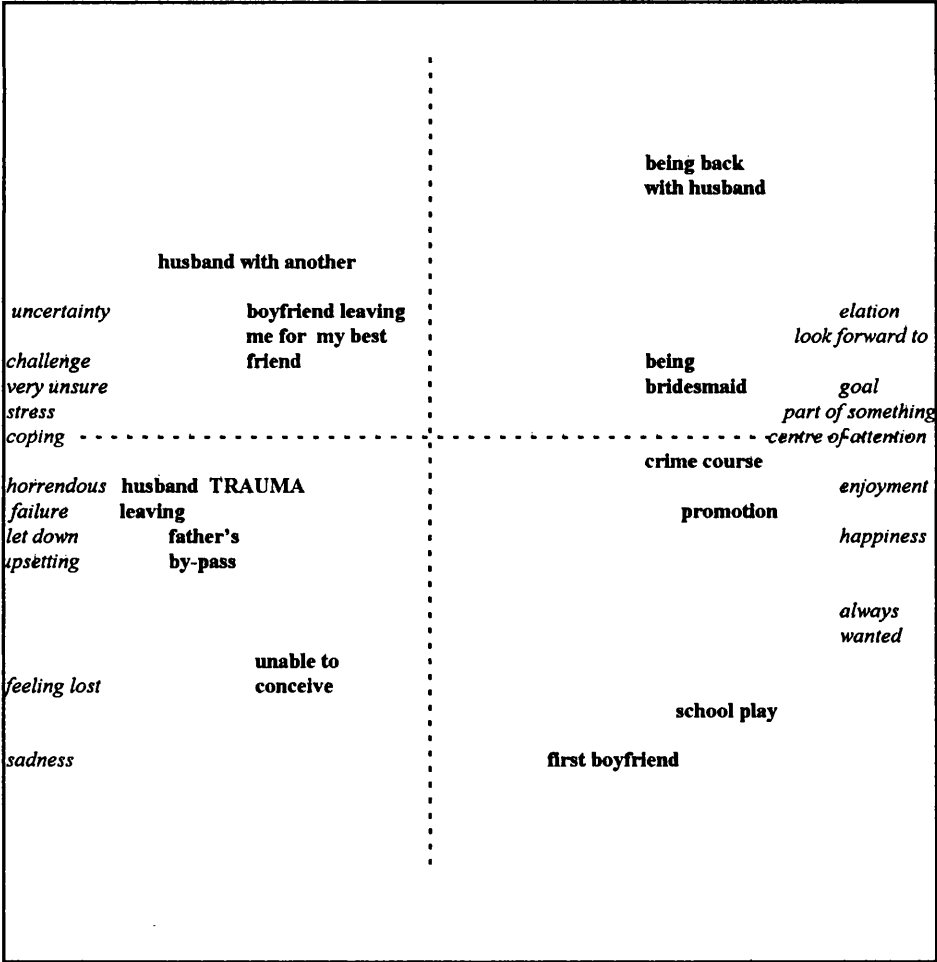
Participant	Level of Elaboration of Traumatic Event		Pythagorean Distance of Traumatic Event from all Other Life Events	
	Pre-Therapy	Post-Therapy	Pre-Therapy	Post-Therapy
Four	1.0	3.0	1.2	1.0
Ten	5.0	5.0	1.3	1.0
Eleven	1.0	3.0	1.5	1.1

Table 8 - Results of Principal Component Analyses Pre and Post-Therapy for those Participants for whom Post-Therapy Data was Available

Participant	Pre-Therapy PCA		Post-Therapy PCA	
	1st Component	2nd Component	1st Component	2nd Component
Four	84.99%	7.18%	94.49%	2.02%
Ten	66.54%	15.53%	71.04%	12.30%
Eleven	78.05%	9.09%	71.25%	13.35%



Pre-Therapy



Post- Therapy

Figure 24 - Pre and Post-Therapy Plots of Life Events in Construct Space from Participant 4's Grids

Key : Horizontal axis = Component 1 ; Vertical axis = Component 2

Life Events are shown in bold ; Constructs are shown in italics

Looking at the pre-therapy grid the first component in the PCA (represented by the horizontal axis) accounted for 84.99% of the variance in construing of the grid and the second component (represented by the vertical axis) accounted for 7.18% of the variance (table 8, page 96). Participant 4's construct system is therefore extremely tight with only one really viable dimension by which the world can be understood. When a person construes things in a tight way they construe events extremely consistently so that what is construed on one pole of a construct one day is also construed on that same pole the next day. Tightness of construing is often an attempt to maintain some stability and consistency in a chaotic world (Fransella & Dalton, 1990) but what it gains in stability it loses in flexibility and adaptability.

On this pre-therapy grid one can see that the main dimension (horizontal axis) is concerned with seeing events either as something 'nice' and 'happy' which makes this participant feel as if she is the 'centre of attention' or, in contrast as something 'shocking' and 'meaningless'. The second dimension (vertical axis) which only accounted for 7.18% of the variance is concerned with distinguishing events that 'crucify me' from those that 'don't bother me' and are seen as 'that's life'. As can be seen from the position of the trauma it is rated extremely on both dimensions (i.e. it is located away from the centre of the plot) it is also associated with other negative life events (husband leaving, husband ending up with another etc.) but is more distant than these from the centre. This is in line with this participant's scores on the grid variables (see Table 7 page 96) as pre-therapy the level of elaboration of traumatic event was low, the distance of the traumatic event from other events was high. In addition she was scoring very highly on all three symptom measures (see Table 6 page 96).

The opposite quadrant to the one in which the traumatic event is located illustrates events which can be considered to be most distant from the trauma and these are 'happy' events associated with 'good feelings'. Being back with husband is again an event which is extremely construed and this was the event that she would most like to happen in the future is construed as an exciting and enjoyable event.

The post therapy grid for this participant illustrates the same life events. The constructs are different as the triadic elicitation procedure was repeated post therapy (see section 2.4.1 of the Method chapter). This time the PCA revealed that the first component now accounted for 94.49% of the variance in the grid and the second component accounted for only 2.02% of the variance (table 8, page 96). This suggests evidence of constriction which minimises the occurrence of incompatibility in the person's experience (Fransella & Dalton, 1990). Post-therapy therefore this participant only had one viable way of construing the world. One can identify from the grid that this involved a differentiation between events that were 'horrendous' and associated with 'stress' and 'uncertainty' and those which made her feel like the 'centre of attention' and were associated with 'enjoyment' and 'happiness'. Having only one viable dimension with which to construe events is not always an advantage as it reduces adaptability and if invalidated leaves the person with nothing to fall back on. However as one can see from the post-therapy plot the trauma has moved closer to the centre and is therefore being perceived far less extremely and is clustered with the other negative events. The movement of the traumatic event corresponds with this participant's scores on the symptom measures which reduced dramatically (see Table 6 page 96) post-therapy. The level of elaboration of the trauma increased (Table 7 page 96) and the distance of the trauma from other events decreased (Table 7 page 96) corresponding to the changes that can be seen on the plots.

A final comment on this participant's grids is that pre-therapy many of her constructs that loaded on the first component construed events as either 'nice' or 'meaningless' and associated with 'shock'. After therapy this main dimension had changed to contrasting 'happiness' and being the 'centre of attention' with events that were 'horrendous' and 'unsure' and associated with 'stress'. The meaningless/shock construction had therefore changed perhaps indicating that the trauma had changed from being construed as something that couldn't be comprehended to something which was construed as horrendous and upsetting and associated with some degree of uncertainty.

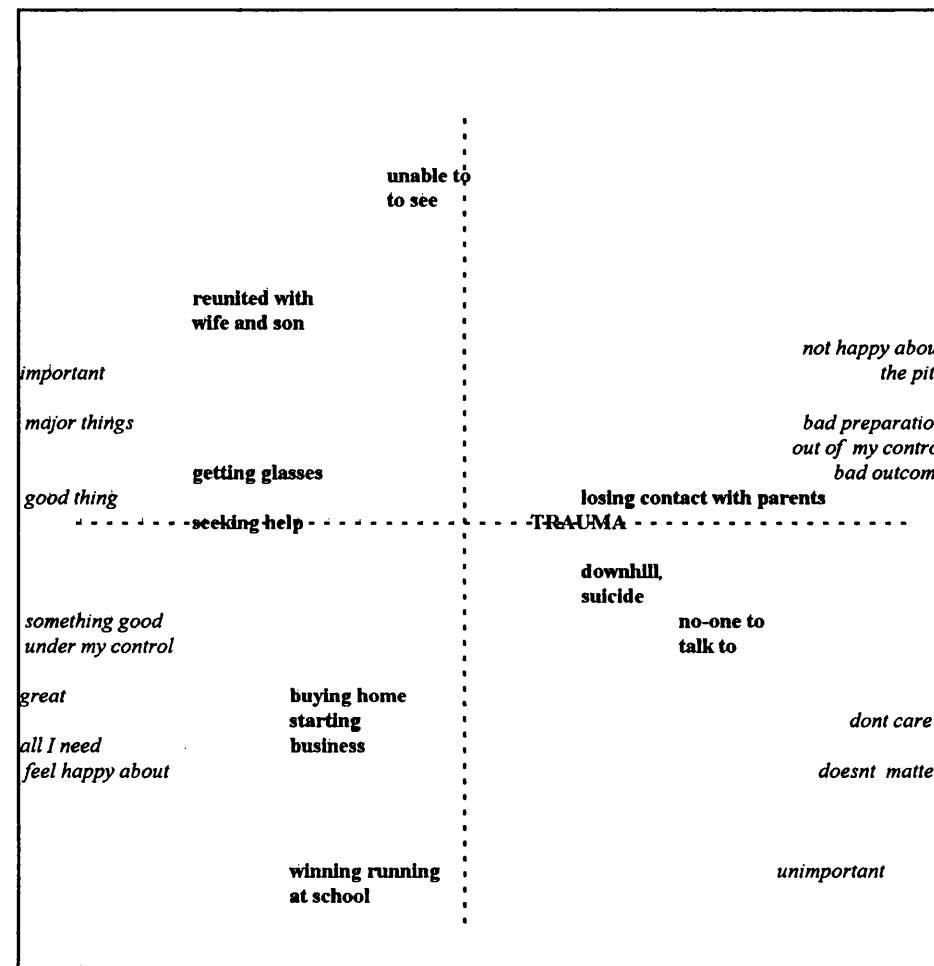
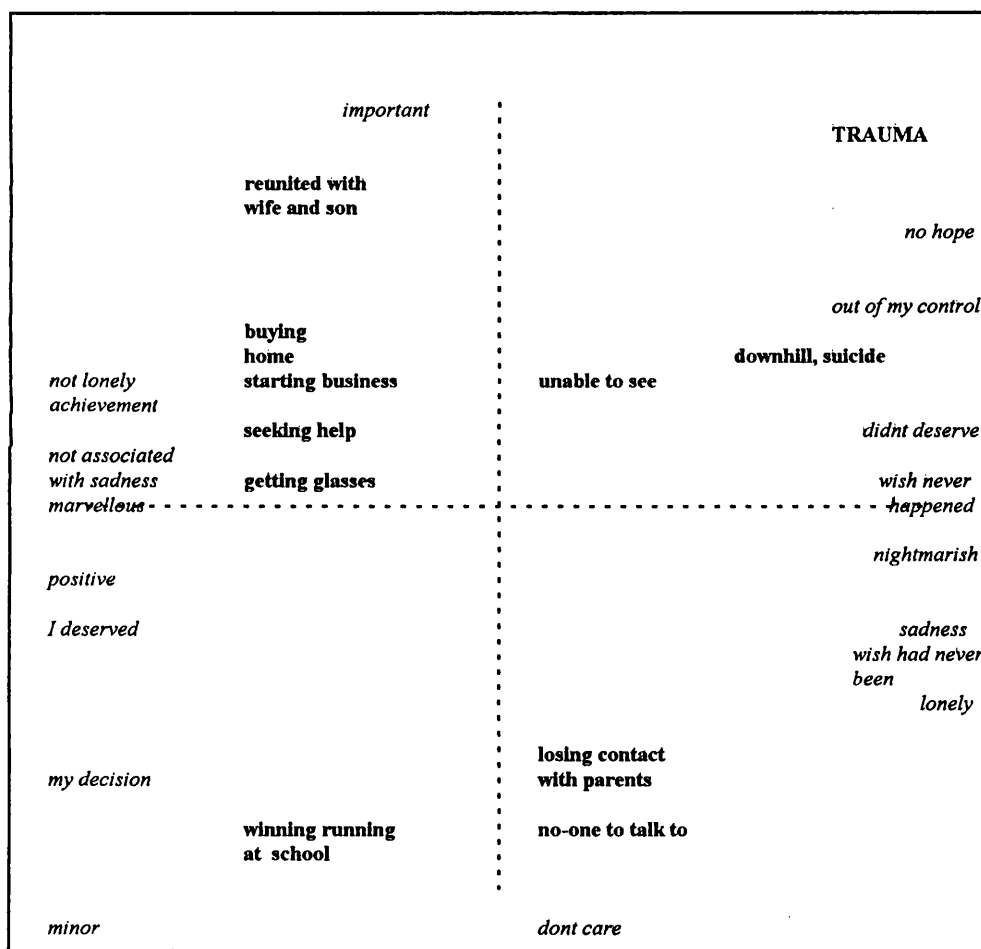
3.9.2 Participant Ten Pre and Post-Therapy

Figure 25 (page 101) illustrates plots of participant 10's grids before and after therapy. The trauma was being imprisoned in South East Asia and this participant received CBT. Selected life events are shown in bold and selected constructs are shown in italics. The first component of the PCA in the pre-therapy grid (horizontal axis) accounted for 66.54% of the variance and the second component accounted for 15.53% of the variance (table 8, page 96). Again, as with participant 4, this indicates tight construing.

As can be seen from Figure 25 the first component in the pre-therapy grid distinguishes between events which are construed as 'nightmarish' and 'wish had never happened' and 'out of control' with those that are construed as 'marvellous', 'positive' and 'not associated with sadness'. The second component seems to be distinguishing events which are construed as 'important' from those this participant 'doesn't care' about. The traumatic event is again construed very extremely on both components (i.e. it is viewed as very nightmarish and very important) and is associated with hypothetical suicide which this participant viewed as the worse thing to happen to him in the future and being unable to see at school which was a source of great humiliation to him. The trauma is seen as most distant from the life event which involved this participant winning all the running events at school as the latter is in the opposing quadrant.

At pre-therapy this participant was scoring very highly on all symptom measures (see Table 6 page 96), especially the IES. However, the level of elaboration of his trauma was interestingly high (see Table 7 page 96). The distance of the trauma from other events was great (see Table 7 page 96) which is more in line with the research hypotheses.

At post therapy the PCA of participant 10's grid revealed that the first component accounted for 71.04% of the variance with the second component accounting for 12.30% perhaps indicating a slight



Pre-Therapy Post-Therapy
Figure 25 - Pre and Post-Therapy Plots of Life Events in Construct Space from Participant 10's Grids

Key : Horizontal axis = Component 1 ; Vertical axis = Component 2
 Life Events are shown in bold ; Constructs are shown in italics

constriction and still suggesting overall tightness of construing (table 8, page 96). From the post-therapy grid (Figure 25, page 101) it can be seen that this first component differentiates between events which had a 'bad outcome' and were 'out of control' from those which were 'something good' and 'under control'. The second component would seem to differentiate from events which are seen as 'unimportant' and 'don't matter' with those which are 'important' and 'matter'. Thus instead of differentiating between events which are 'nightmarish' or 'marvellous' this participant is perhaps now construing events less in terms of emotions and more in terms of thinking about outcome, preparation and control.

The trauma is being construed post-therapy far less extremely and is closer to other negative life events. Being reunited with his wife and son (which he considered to be the best thing to happen to him in the future) is still construed extremely especially on the 'important' dimension. In terms of symptoms this participant post-therapy scored within the normal range on the BAI and the IES but was still showing symptoms of depression (see Table 6, page 96) as one might expect from someone whose life had been altered very dramatically by his trauma (being imprisoned and then deported thus leading to the separation from his wife and son). The level of elaboration of the trauma remained the same following therapy but the distance of the trauma from other life events decreased (see Table 7 page 96).

3.9.3 Participant Eleven Pre and Post-Therapy

Figure 26 (page 103) illustrates plots of participant 11's grids before and after therapy. The trauma was the experience of doing national service and this participant received CBT. Selected life events are shown in bold and selected constructs are shown in italics. Pre-therapy the PCA revealed that the first component (horizontal axis) accounted for 78.05% of the variance and the second component (vertical axis) accounted for 9.09% which again indicates tightness of construing (table 8, page 96).

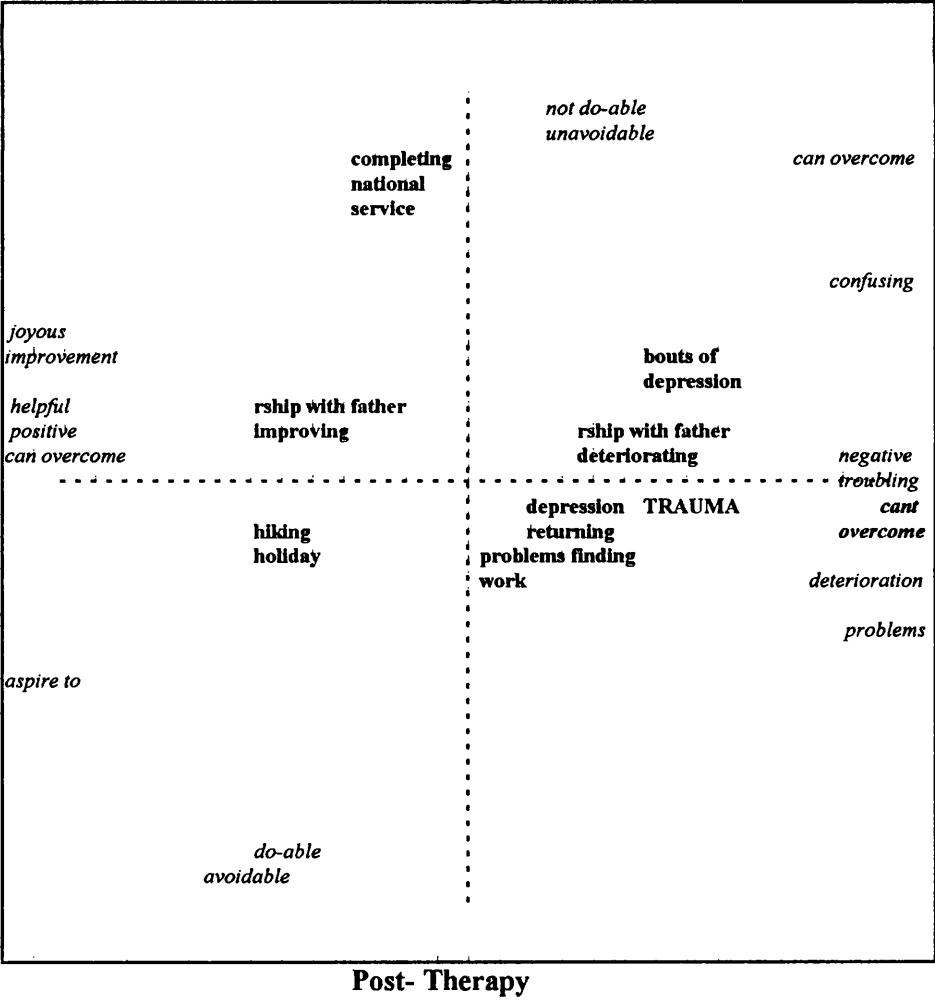
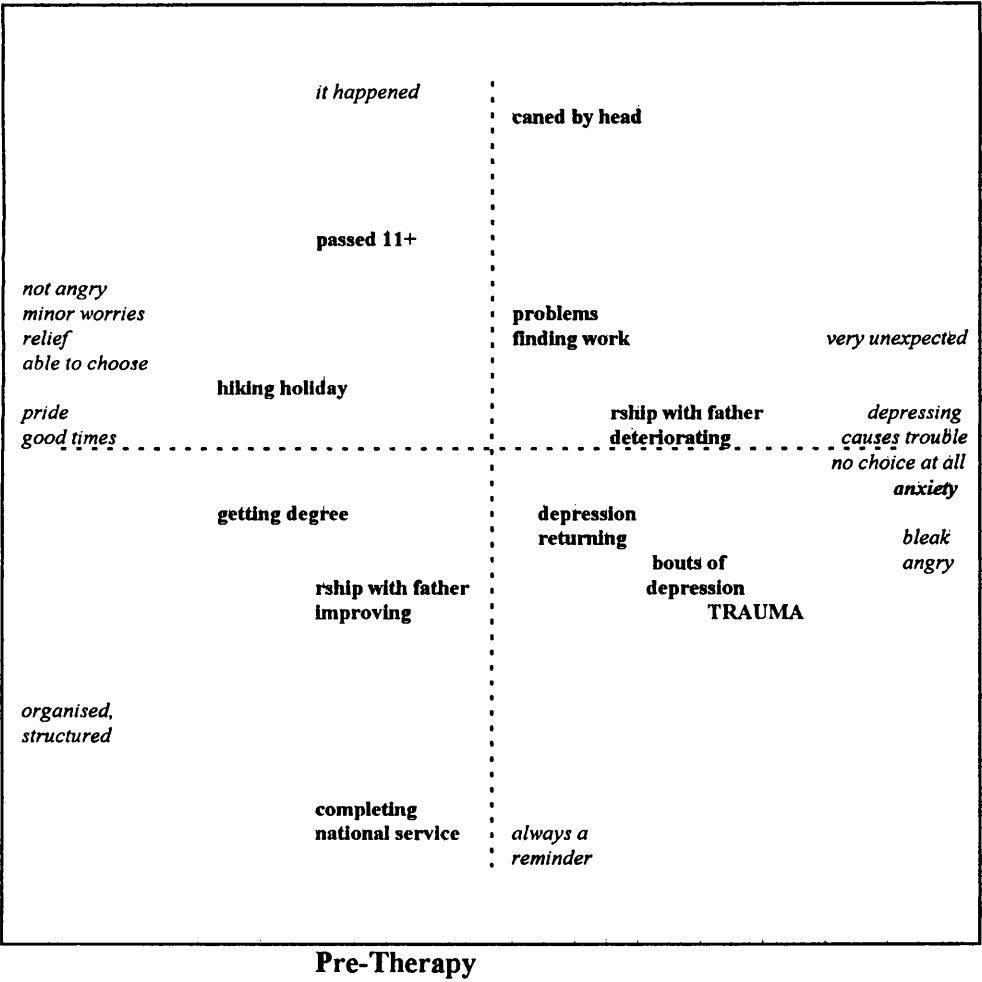


Figure 26 - Pre and Post-Therapy Plots of Life Events in Construct Space from Participant 11's Grids

Key : Horizontal axis = Component 1 ; Vertical axis = Component 2

Life Events are shown in bold ; Constructs are shown in italics

As can be seen from the pre-therapy grid in Figure 26 the first component contrasts events which are 'depressing', 'cause trouble' and involve 'no choice at all' with those that are associated with 'pride' and 'good times'. The second component seems to contrast events which are 'always a reminder' with those that just 'happened'. The trauma is construed relatively extremely on both these dimensions and is associated with this participants feelings of depression and his fear of these bouts of depression recurring in the future. The life event completing national service was something which was construed as being 'good times' but 'always a reminder' because it was associated with the trauma of doing the national service. The trauma was construed at pre-therapy as most distant from passing the 11+ and a hiking holiday with friends.

Pre-therapy this participant was scoring highly on the IES but was within mild ranges on the BAI and BDI (see Table 6, page 96). The level of elaboration of the trauma was low pre-therapy and the distance of the trauma from other events was great (Table 7, page 96) thus relating to characteristics of the plot pre-therapy.

At post-therapy the PCA revealed a first component which accounted for 71.25% of the variance and a second component which accounted for 13.35% thus suggesting some reduction in tightness of construing (table 8, page 96). As can be seen from the post-therapy plot the first component contrasts events which are 'negative' and troubling' and are seen as associated with 'deterioration' with those which are 'helpful' and 'positive' and associated with 'improvement'. The second component seems to contrast events which are 'unavoidable' and 'not do-able' with those which are 'avoidable' and 'do-able'. The trauma is construed less extremely than at pre-therapy and is clustered with other negative life events. It is also contrasted with the completion of national service and the relationship with his father improving which are seen as 'helpful' and an 'improvement'

At post-therapy this participant was scoring within normal ranges on the BAI and BDI and not scoring at all on the IES (Table 6, page 96). The level of elaboration of his trauma did increase and the distance of the trauma from other life events did decrease following therapy (see Table 7 page 96) which again seems to relate to the changes that can be seen on the plot of his grid post-therapy.

4 DISCUSSION

Overview

In this Discussion chapter I begin by summarising and discussing the results obtained from the exploratory data analyses in the context of the methodological limitations of the study. Further methodological issues are discussed. Any implications the study has for the Constructivist Model of PTSD, other theories of PTSD and for clinical practice are then considered. Finally, given the limitations of this study, suggestions for further research are made

4.1 DISCUSSION OF RESULTS

4.1.1. Demographic Variables, Participant Characteristics and Symptoms

As described in the Results chapter (Section 3.1) it was not possible to examine any potential relationships between the categorical variables of sex, marital status and employment status and participants scores on the symptom measures and the repertory grid variables. This was as a result of the small sample size in this study such that the number of cases in each cell for a Chi-Square analysis, for example, would have been inadequate. A scatterplot was constructed in order to explore any possible association between participants age and both symptom scores and grid variables - no associations were indicated. Ideally, with a larger sample size one would be able to perform analyses that would more fully address the potential influence of these variables on the results obtained however, previous research (e.g. Gibbs' (1989) review of the literature - see Section 1.1.4 of Introduction chapter) indicates that such factors are not influential in terms of participants' symptoms of PTSD.

Similarly it was not possible to examine any relationships between the type of trauma and the type of therapy and participants' symptoms and scores on the grid variables. With a larger sample it might

have been interesting to examine any differences between those participants whose traumas had been of human design (e.g. an assault), or had involved a bereavement or personal disfigurement as opposed to those which had not, given the findings discussed in Section 1.1.4 of the Introduction chapter which suggest that such factors may influence the degree of PTSD symptomatology.

It was possible to explore any associations between the time elapsed since the trauma and the length of therapy and participants' scores on symptom measures and the grid variables. This was done using scatterplots and one association could be identified between participants' scores on the Beck Depression Inventory and the time elapsed since the trauma ($r = -0.60$, $p = <0.05$) (see page 67). The association suggested a negative correlation between these two variables such that as time since the trauma progressed participants' levels of depression reduced (but not to below clinical levels). Obviously with a small sample size such an association needs to be interpreted with caution. It is not clear why this result was obtained, however, it is possible that in this sample, the more recently traumatised individuals felt the most depressed about their situation whereas for those whose trauma had been experienced some time before the study their level of depression was at a less acute stage.

Again, due to the small sample size no exploratory data analyses comparing participants who had received prior psychological help with those who had not could be performed. Only one participant had in fact received prior help. With a larger sample size this would have been an interesting comparison given Blanchard et al's (1996) finding that prior experience of PTSD and presence of a previous major depressive episode were predictive of subsequent PTSD symptoms following motor vehicle accidents (see Section 1.1.4 of the Introduction chapter) and Sewell et al's (1996) suggestion that prior or early traumatisation might lead to the development of isolated construct clusters which are then re-activated through subsequent experience of trauma (see Section 1.4.3 of the Introduction chapter).

Other variables which might have been included in the study, if a large enough sample had been obtained, were those associated with the post-trauma environment (levels of social support, number of post-trauma life events) all of which have been found by various researchers to influence the

development of PTSD (see Section 1.1.4 of the Introduction chapter). However, Sewell (1996) found that these kinds of variables (especially level of exposure, levels of social support and experience of prior trauma) were only useful predictors of PTSD at one week following trauma. At three months the most useful predictor was the level of elaboration of the traumatic event (see Section 1.5.1 of the Introduction chapter) and they therefore suggest that the most critical variables are those concerned with processing of the traumatic event rather than those associated with demographic or trauma related characteristics of the sample.

As noted in Section 3.2 of the Results chapter all but one participant was scoring within clinical ranges on the Beck Anxiety Inventory (BAI) and all scored within the clinical range on the Beck Depression Inventory (BDI). This is not unexpected, as reported in Section 1.1.2 of the Introduction chapter co-morbidity of PTSD with depression is high and as reported by Joseph et al (1994) co-morbidity with anxiety is also high - one and a half years after trauma their sample were still experiencing high levels of anxiety. However, in contrast to Joseph et al (1994), scores on the Impact of Events Scale (IES) for this sample were not significantly correlated with scores on the BDI suggesting that levels of depression were not directly related to levels of PTSD. Similarly Joseph et al (1994) found that levels of intrusion were most predictive of levels of anxiety however in this sample, levels of avoidance showed a stronger correlation with BAI scores than levels of intrusion. It is unclear why such different results were obtained however the Joseph et al (1994) study was using levels of PTSD symptoms at seven months to predict levels of anxiety and depression at 19 months whereas this study measured all symptoms concurrently. Also it must be borne in mind that the study reported here has a smaller sample than Joseph et al's (1994) of 25 participants so obviously the results obtained in this study need to be interpreted with caution.

4.1.2 Level of Elaboration of the Traumatic Event

Prediction 1 hypothesised that the traumatic event would show the lowest mean level of elaboration compared to other life events. The mean level of elaboration of the traumatic event across participants was found to be 3.31 whereas the mean level of elaboration of all other life events across participants was found to be 3.03 (see Section 3.3 of the Results chapter, page 72) and a two-tailed paired samples t-test confirmed that there was no significant difference between these two means. This prediction was not therefore confirmed. Similarly, *prediction 2* hypothesised that there would be a significant association between the level of elaboration of the traumatic event across participants and their symptoms of PTSD. Exploratory scatterplots were constructed in order to test this prediction, however no associations were found and prediction 2 was not confirmed.

Sewell et al (1996) found in their study that the mean level of elaboration of the trauma in their PTSD sample was 2.70 in comparison to their non-PTSD sample where the level was 3.30. Similarly in Sewell's (1996) study the mean level of elaboration of the trauma in the PTSD sample was 1.5 compared to 3.2 in the non-PTSD sample. The Sewell study was of course of a different nature to the current study in that it was a between subjects comparison of the same life event in two groups of participants rather than a within subjects comparison of different life events with each other. However the findings of this current research demonstrate a level of elaboration for the traumatic event which is similar to the level of elaboration of the trauma in the non-PTSD samples in the Sewell studies and in addition for this sample, there was no association indicated between level of elaboration of the trauma and symptoms of PTSD as one would have predicted from the Constructivist Model of PTSD.

It is not clear why this result was obtained although a number of possible reasons are discussed. Firstly one must consider that the sample for this current study is small and therefore any results, whether they appear to confirm or contradict the research hypotheses should be interpreted with caution. Secondly, one might suggest that the level of elaboration of the trauma is not a valid or reliable indicator of the degree of integration of the traumatic event however this would contradict the

convincing findings of the Sewell studies. A third possibility is that of error in the use of the HICLAS program and determination of the level of elaboration of the life events. The program is itself complex to use and the level of elaboration of events is often difficult to determine from the graphical displays. In terms of Personal Construct research into PTSD the HICLAS program is a relatively new tool and perhaps requires refinement. Work is in fact currently being undertaken in terms of a methodological reconsideration of the use of the HICLAS program (Sewell & Williams, 1997) and the inconsistent findings in relation to research into PTSD that have become evident in its use. For example, with this current study, the HICLAS program, because it converts grid data to binary form, gives emergent pole ratings a value of '0' and implicit pole ratings a value of '1'. The trauma was often construed at the implicit end as the 'odd one out' in terms of the triads of life events and was therefore more often given a HICLAS binary value of '1'. The program bases the analysis on this matrix of data (i.e. the '1's - the implicit poles where the trauma is more often construed) which might account for its high level of elaboration. Perhaps if the binary values had been reversed so that the analysis was based on the emergent poles the result might have been different? It is questions such as these which Sewell & Williams (1997) maintain need to be considered.

Given the small size of the sample in this study, the findings of the Sewell studies and the obvious need for further work on the operationalisation of the index of elaboration in repertory grid analysis it is not possible to draw any firm conclusions from the findings regarding this variable in this study.

4.1.3 Distance of Traumatic Event from Other Life Events

Prediction 3 hypothesised that the traumatic event would show the greatest distance from all life events than any other life event. This prediction was confirmed by using a two-tailed paired samples t-test to compare the mean distance of the trauma from all other life events across participants (1.14) with the mean distance of all non-trauma events from all non-trauma events across participants (0.87) (see page 77 of the Results chapter). Obviously with a small sample size there is the danger of making

a Type I error (i.e. rejecting the null hypothesis when it is in fact correct) however the significance of the result at $p < 0.001$, one might argue, reduces the possibility of this. The result should therefore be interpreted with caution however it suggests that for this sample at least that the trauma is construed as more distant from other life events than non-trauma events. Such a suggestion is in line with the Constructivist Model argument that the traumatic event is less construed in terms of similarities and differences with other events than non-trauma events hence the symptoms of PTSD.

Similarly, an association was found between the distance of the traumatic event across participants and their scores on the Intrusion subscale of the Impact of Events Scale providing some evidence for ***prediction 4***. The correlation co-efficient from this association ($r = +0.47$) was significant at $p = 0.05$ for a one-tailed test and accounts for approximately 22% of the variance (see page 82 of the Results chapter). Outliers and cases which fell on the correlation line are discussed in the results chapter in terms of the research hypotheses and it is possible to consider these individual cases in terms of the Constructivist Model of PTSD however, the findings, obviously, cannot be generalised. With such a small sample size and the lower level of significance obtained from this data analysis there is the danger of a Type I error and a larger sample that would permit one to exclude outliers would be needed to allow one to confirm the hypothesis. Sewell and colleagues focus more on the elaboration variable as an indicator of degree of integration of the trauma however this distance variable might also prove to be an alternative or additional indicator and the result obtained in this study indicates that it is worth pursuing a further investigation of the relationship between this distance variable and symptoms of PTSD.

4.1.5 Extremity of Ratings of the Traumatic Event Pre-Therapy

Prediction 5 hypothesised that the traumatic life event would be rated more extremely than all other life events. This prediction was confirmed using a paired samples, two tailed t-test to compare the mean number of extreme ratings of the trauma (11.92) with the mean number of extreme ratings for

all non-traumatic events (6.45) (see page 91 of the Results chapter). Again given the large number of comparisons made with this small sample there is the danger of a Type I error but as with the comparison involving the distance variable at a significance of $p = 0.001$, one could argue that the possibility of this is reduced. Although this result therefore has to be interpreted with caution it suggests that the trauma is construed more extremely than other events and therefore could be an indication of more 'black and white' construing of the trauma than of other life events.

4.1.5 Designation of Non-Positive Construct Poles

An examination of the numbers of non-positive poles designated as 'negative' compared to the numbers designated as 'just less positive' was carried out as described in the Results chapter (Section 3.6, page 93). The total number of non-positive construct poles designated as 'negative' (178) was far greater than those designated as 'just less positive' (17). No statistical analysis was performed on this data as the difference between the two values seemed obvious. This would seem to again be indicative of 'black and white thinking'. However, no comparison could be made for example with a 'normal' control group to see whether this is a usual occurrence or with a post-therapy comparison to see if the number of 'just less positive' designations increased following symptomatic improvement. It is therefore difficult to reach a conclusion about the importance of such a result except perhaps to add that when examining this same variable, Sewell et al (1996) found that their PTSD group used the 'negative' designation more often than the non-PTSD group.

4.1.6 Case Illustrations of Participants for whom Post-Therapy Data was Available

For each of the three participants who were interviewed pre and post-therapy plots of their repertory grids were drawn out and commented upon in Section 3.7 of the results chapter (page 95). From the plots it could be seen that the traumatic event was construed as less distant from other life events

following therapy. There was also some indication of changes in the content of the constructs and it would perhaps have been interesting, if there had been a greater number of participants post-therapy, to perform an analysis of the content of the constructs before and after therapy after Landfield & Epting (1987). However, this current research was more concerned with the construal of the traumatic event in terms of structure of the construct system rather than content.

A further interesting consideration which arose from the examination of the plots of these three participants' grids was that the principal component analysis revealed that all three had very tight grids pre-therapy (as judged from the amount of variance in the grids accounted for the first component in the PCA). As described briefly in Section 3.7 of the Results chapter tight construing means that there is a high level of consistency in the person's construct system. In these three cases the tightness indicates that the participants are construing the events in terms of one main dimension. As Winter (1992) suggests such a feature is only really useful if the world in which the person lives is always consistent thereby not posing any problems in construing. Unfortunately the world is not like that and the tight construer is prone to anxiety as given the tightness of construing s/he has one really viable method of construing the world which if invalidated leaves him/her with nothing and might therefore threaten to invalidate core constructs.

It is possible that these three participants were demonstrating tight construing pre-therapy as a response to the trauma (i.e. they tightened their construct system in order to make the world seem less chaotic and more predictable). According to construct theorists (Kelly, 1955 ; Winter, 1992; Fransella & Dalton 1990) therapy (with neuroses) is about loosening the construct system in line with the ideas behind the Experience, Creativity and CPA Cycles (see Section 1.4.1 of the Introduction chapter) so that alternative, more useful constructions can be employed. In applying this to the Constructivist Model of trauma Sewell et al (1996) propose that recovery from PTSD involves a process of loosening of the system whereby new constructs are introduced (or old constructs modified) so that the trauma can be construed by the construct system and so become integrated. This being the case one might expect that if following therapy these three participants demonstrated reduced levels of PTSD then their construct systems would have loosened. However, post therapy these three participants still

showed tightness of construing as evident from the amount of variance accounted for by the first component on the PCA following therapy. In addition two showed evidence of constriction¹ as participants 4 and 10 demonstrated an increase in the amount of variation accounted for in the first component in the PCA following therapy. (participant 4 rose from 84.99% to 94.49% and participant 10 rose from 66.54% to 71.04%).

This is interesting given the findings on the symptom variables for both these two participants (neither were scoring within the clinical range on the IES post-therapy) but especially for participant 4 who was not scoring at all on the IES following therapy but had constricted so much following therapy that the first component on her PCA accounted for 94.49 % of the variance in the grid which is extremely high. Tightness of construing as indicated by a PCA is an established feature of repertory grids associated with neurosis (Winter 1992).

One potential explanation for this finding is that the scores on symptom questionnaire were subject to participant bias. Following therapy all three participants, but especially participant 4 seemed keen to demonstrate to me and possibly also to themselves that they were now free of PTSD symptoms - hence the dramatic reductions in IES scores. It might have been understandably very important to them that the therapy had 'worked' and helped them to overcome their PTSD. This raises the question of the accuracy of self-report symptom questionnaires. The grid variables (most notably the distance of the traumatic event from other events and the evidence of the plots in Section 3.7 of the Results chapter) had changed in the direction one would expect given a reduction in symptoms but was not as dramatic a change as in the self-report of the symptoms of PTSD. One might conclude that the distance variable not a reliable indicator of change. Alternatively, given the established research on constriction and tightness in repertory grids (Winter, 1992) and it's relationship to psychological difficulties, one might suggest that the distance variable may actually be a more conservative or sensitive estimator of change than self-report symptom questionnaires. In support of this idea Winter

¹ constriction is a Kellyian term to describe a narrowing of the perceptual field in order to minimise apparent incompatibilities that may arise (Kelly, 1955)

(1993) suggests that the repertory grid procedure has less face validity than questionnaires for participants and might therefore be a more useful and accurate measure of change.

It might be the case that for these participants but especially participant 4, the increased integration of the trauma has occurred at a cost. It may be that the way she previously construed herself was as someone who had PTSD as opposed to someone who had not got PTSD with all that implied. Following therapy perhaps the trauma has become more integrated and she now experiences fewer PTSD symptoms but has 'slot rattled' her way to the other end of her constructs about PTSD no longer construing herself as someone with PTSD. As described in section 1.4.3 of the Introduction chapter slot movement occurs when no new constructs are developed but the person alternatively construes themselves at either extreme end of the dimension which can lead to massive mood changes. This is associated with tightness of construing as it is an 'either' 'or' way of perceiving the world. What I am suggesting is that perhaps for participant 4 she is now construing herself extremely on the dimension PTSD versus no PTSD (hence the result on the IES) but that this is very limited and tight (hence the constriction on her grid). There are no 'shades of grey' or alternatives for construing, therefore if she experiences something which invalidates her main dimension of construing she is danger of having to either constrict further or of slot-rattling to the other end and relapsing. For example, if she did experience a bad dream about the trauma this might invalidate her construal of herself as PTSD-free and she might have to slot rattle to the other end and see herself as someone with PTSD again which would incur massive mood changes. If her construct system was not so tight then it might be able to accommodate the occasional intrusive experience without her having to see herself as a PTSD person again.

In participants 4 and 10 therefore where dramatic symptom reduction occurred and where there seemed to be some change in the level of integration of the trauma indicating recovery there was in contrast a worrying constriction in the grids. It might be the case that for these two participants some effective processing of the trauma occurred but that this was achieved at some cost (i.e. constriction of the construct system to reduce inconsistencies) and that there is the danger of relapse should their subsequent experience invalidate their main dimension of construing perhaps akin to Brewin et al's

(1996) idea of premature inhibition of processing (see Section 1.3.3 of the Introduction chapter). Of course one cannot from these three cases make any generalisations. However, they are of interest from both a clinical and theoretical point of view.

4.1.7 Summary

Given the small size of the sample exploratory data analysis was used and no pre and post-therapy comparisons could be made as was originally intended. The level of elaboration of the traumatic event was not found to be significantly lower than that of other life events and neither was an association found between this variable and participants' scores on the symptom measures. In contrast the distance of the traumatic event from other life events was found to be significantly greater than that of other life events as the Constructivist Model of PTSD would predict and there was limited evidence to suggest an association between this variable and participants' scores on the Intrusion subscale of the Impact of Events Scale. Similarly the traumatic event was construed more extremely than other life events suggesting evidence of more polarised construing, again as might be predicted by the Constructivist Model of PTSD. As noted throughout, due to the sample size these significant results should be interpreted with caution and further research is needed fully test these hypotheses - suggestions for which will be made subsequently. Finally the single case analyses and the pre and post comparisons provide an illustration of some of the ideas of the Constructivist Model which is of potential interest and utility in terms of clinical practice, again to be discussed subsequently.

4.2 METHODOLOGICAL LIMITATIONS OF STUDY

4.2.1 Sample Size

Difficulties were encountered in recruiting an optimal number of participants for the study. Many established specialist PTSD services conduct their own research and are therefore understandable reluctant to permit external research projects which might mean clients being participants in more than one study. This problem led to some delay in establishing areas of recruitment and a number of different centres were used. The decision to recruit participants from police officers being treated in one of the services necessarily delayed the research as did the application for ethical permission from the police force in question. Unlike NHS Trusts the police force did not have a regular venue at which research applications could be discussed.

Only a small sample was therefore recruited for this study. The sample included only thirteen participants and even though some of results obtained were highly significant suggesting a large effect size it is difficult to draw any firm conclusions. Cohen (1992) recommends a sample size of 26 participants for significance at the 0.05 level if postulating a large effect for a comparison of means and obviously the sample in this study is much less than this. A non-significant result was found for the elaboration variable and it might be the case that if a larger sample size had been obtained this would have changed. Similarly one might argue that with a larger sample size the significant results for the distance variable and the extremity of rating of the trauma might also have changed, although as they stand, for this sample size and from the exploratory analysis, there does seem to be some evidence for an effect. Similarly, in terms of correlational analysis, Cohen (1992) recommends again a sample size of 28 for a large effect at the 0.05 level. Obviously this sample is much smaller than that so again no real conclusions can be drawn. Single case analysis allowed for an examination of cases which supported a correlational relationship between the distance variable and those which contradicted it. These cases could be explained in terms of the research hypotheses and indeed were, but this does not provide adequate confirmation of the hypothesis - with a larger sample size it is possible that further evidence would be obtained but it is perhaps equally possible that evidence contrary to the hypothesis would be found.

As described previously a within subjects pre and post-therapy study had originally been intended. If it had been possible to obtain a larger sample post-therapy one might have been able to perform some

exploratory data analysis examining whether changes in grid variables indicative of integration (according to the hypotheses) were associated with changes in symptoms and as such would have represented a relatively powerful test of the model. However, only three participants were interviewed post-therapy and therefore a discussion of these particular cases was all that was possible. This highlights the difficulties of performing a pre and post-therapy within group comparison - it is very difficult to obtain an adequate post-therapy sample for a number of reasons. These include the problem of drop-outs and the possibility that clients, once they have finished their therapy do not wish to return for a research interview. In retrospect methods that could have been used to ensure a greater sample size post-therapy might have included interviewing participants before their last session (although this might have been difficult to arrange in practical terms) or interviewing them immediately after their last session. This latter option again might have been difficult to arrange practically and would also have been very tiring for participants.

A final point to consider is that the sample was very heterogeneous. Participants were recruited from four different centres, three of which were outpatient psychology services and one of which was a police force referral service. In addition they received different kinds of therapy, of different lengths with different therapists. There was therefore very limited control of extraneous variables in the study. However, the research was not intended as an evaluation of therapy. What was of interest was whether the variables used were useful indicators of the degree of integration of the trauma and whether there was a relationship between the variables and participants' symptoms. In addition the heterogeneity of the sample probably matches that which one would find in the PTSD referrals to Psychology Department.

4.2.2 Design

A within-subjects design was used to test the research predictions however it was not possible to make any pre and post therapy predictions. In retrospect the use of alternative comparison samples in a

between subjects design might have been considered. A 'normal' sample might have been used to examine levels of elaboration of life events and their distances from each other. It would however have been difficult to recruit a sample of people who had experience a trauma but who had not symptoms of PTSD as Sewell and colleagues were able to do in their studies. However, it would have been interesting to compare distance of events in 'normal' participants with those in this sample to examine whether greater distances between some events represent a lack of integration which is not threatening.

If a pre and post-therapy comparison study had been possible then one could have compared changes in distance and elaboration of the trauma (and their relation to symptoms) in a PTSD group with either a 'normal' sample or perhaps a waiting list comparison. For example, if participants on the waiting list comparison demonstrated a change in grid variables with no concurrent change in symptoms then again this would pose problems for the theory. Again, this type of design would have enabled a more powerful test of the model to be performed. However, it is difficult (and can create ethical problems) to set up a waiting list comparison group especially if one does not already exist in the centres where the research is being conducted.

Finally, with a smaller sample size one might have considered using more data points - for example, interviewing participants at the start, mid and end points of therapy. Of course this would have been difficult with this sample since six dropped out and most of the remaining sample received very short-term interventions (see Table 2, page 65). However, this kind of time-series design represents a further alternative to the design employed here.

4.2.3 Measures

The symptom measures used were all established instruments with proven reliability and validity (see Section 2.3.1 of the Method chapter). However as discussed earlier the question of bias in such self-

report questionnaires was raised in the invidious case illustrations for those participants who were interviewed following therapy. Obviously there is a danger of generalising from three cases however, in retrospect, it might have been helpful in addition to the self-report questionnaires for a clinician administered measure to be used. For example, using the Clinician Administered Post-Traumatic Stress Scale (Blake et al 1990) might have allowed for a potentially more objective assessment of symptoms although, this would obviously have extended the interview time further for participants.

As discussed the repertory grid method has a lower face validity than symptom measures for example and therefore may be a more sensitive indicator of change (Winter, 1993). However, is it reliable and valid measure? The issue of reliability in relation to repertory grids is complex as it is an idiographic as opposed to nomothetic instrument and therefore needs to be sensitive to individual differences and differences over time for the same person. As Blowers & O'Connor (1995) suggest a highly reliable grid measure might be insensitive to change. However researchers have established that it is a stable measuring device (e.g. Bannister & Mair, 1968) so that even if particular constructs might change between testing under similar conditions the construct system overall remains stable suggesting that the grid can be a reliable instrument. Winter (1992) reports many studies which give evidence of the validity of repertory grids (i.e. which assess how well the grid measures what it purports to measure) and suggests that it is a both reliable and valid tool but is more so when the constructs and elements are elicited from clients (as was done in this study) rather than provided for them. Unfortunately, to my knowledge, in PTSD research there seem to be no other proposed indicators of the degree of integration of the traumatic event with which one could compare these grid variables and thus test their construct validity.

4.3 THEORETICAL IMPLICATIONS OF THE STUDY

As discussed due to the sample size used in this study, the research predictions cannot be confidently confirmed. However within this context the results suggested from the exploratory data analyses which were conducted are discussed in terms of the various theoretical models of PTSD.

4.3.1 The Constructivist Model of PTSD

To summarise from Section 1.4.3 of the Introduction Chapter Sewell et al (1996) maintain that PTSD is the result of an experience which cannot be fully subsumed within the person's construct system. It cannot be construed in terms of similarities and differences with other life events the person has experienced and remains isolated within the construct system. The trauma therefore cannot be integrated and placed within a coherent understanding of the self and the world post-trauma. As described in Section 1.4.3 of the Introduction chapter the Constructivist Model fits in with Kelly's ideas (Kelly, 1963) of the experience of trauma as creating 'threat' and therefore an 'imminent comprehensive change in core structures' which is so invalidating that the new element (i.e. the trauma) is rejected in 'one big lump'.

In their model Sewell et al (1996) (see Figure 1, page 43) suggest that for some people the threat posed by the trauma can be accommodated by a construct system which is flexible enough in its core construing to extend its range of experience to include the trauma without too much incompatibility and invalidation occurring. However, if the system is not flexible enough then the trauma remains isolated within its own trauma cluster of constructs and the symptoms of PTSD ensue. High levels of anxiety prevail because of the constant threat posed by this experience which cannot be construed overall. Likewise because the trauma is construed in a very limited way that does not relate to the construct system it is very unstable adding to the risk of slot rattling and therefore creating the potential for massive mood changes. Sewell et al seem to be proposing that under these circumstances

the intrusive re-experiencing of the trauma occurs not under voluntary control as the trauma is not under the control as it were of the rest of the construct system. As a result of this threatening and precarious state of affairs core constructs can be loosened which may be a creative process under some circumstances allowing for elaboration of the construct system but in this case it can lead to a fragmented and chaotic view of the world. Links between constructs may be lost and experience and sense of self may become fragmented and dissociation may even occur. The avoidance symptoms are seen by Sewell et al (1996) as attempts to reduce this threatening state and regain some certainty and predictive ability in the world. Similarly the emotional numbing might occur because the experience of any affects might carry with it the threat of experiencing the affects associated with the trauma again which would be intolerable.

What implications does the current research have for this model? This study demonstrated that the distance of the traumatic event from other life events was great suggesting that the trauma could not be construed in terms of similarities to and differences from other events. Although this result must be considered in terms of the sample size limitations already discussed this would seem to suggest that the trauma in these participants is not very well integrated into the construct system. Further there was limited evidence to again suggest that there was a correlational relationship between the distance variable and certain symptoms of PTSD as measured on the Intrusion subscale of the IES. The individual case illustrations for the three participants interviewed at post-therapy also demonstrate that changes in the distance of the trauma (and in fact the level of elaboration of the trauma) occurred following therapy and that symptoms also reduced. Obviously it is not possible to judge whether these changes are indicative of an association between the variables but had the opposite been found (i.e. that distance increased and elaboration decreased in the face of symptom change) these case illustrations would have been difficult to explain in terms of the Constructivist Model.

Further exploratory analysis revealed the potential of other variables in research into the Constructivist model. The trauma was rated more extremely than other life events and there was some evidence of polarised 'black and white' as opposed to 'shades of grey' thinking in participants' choice of designation of the non-positive construct pole (also found by Sewell et al, 1996). Again these

results need to be interpreted with caution but they suggest evidence of polarised construing as might be predicted by the Constructivist Model.

However, in this study exploratory data analysis did not reveal any evidence to suggest that the level of elaboration of the trauma was related to symptoms of PTSD. Similarly the trauma was not shown to be less elaborated than other events. This is in contrast to the Sewell studies which maintain that the elaboration variable is the principle indicator of the level of integration of the trauma within the Constructivist model. It is possible of course, that with a larger sample size an effect might have been detected. In addition as described earlier the use of the HICLAS program to determine the level of elaboration is subject to error and is currently the subject of debate (Sewell & Williams, 1997). Obviously further work needs to be done on the use of the program and on the operationalisation of the elaboration variable before any conclusions can be made. It is also worthwhile noting that the Constructivist Model does not rest on the validity or otherwise of the elaboration variable - if the latter's validity is questioned this does not necessarily imply that the Model is at fault it may mean that this variable is simply not a valid indicator of integration.

In this study it was not possible to examine more closely the constructs which were and were not being used to construe the trauma. The Model suggests that the trauma is construed by an isolated trauma construct cluster. This results of this study seem to be suggesting that the trauma is more isolated from the rest of the construct system but the proposal of an isolated set of constructs which construe the trauma was not tested. Obviously the constructs used by participants in this study were elicited through the use of triads of life events some of which contained the traumatic event. It would seem appropriate to suggest that some of these constructs may have derived from such an isolated subsystem but others from the main construct system so that the trauma may not exclusively be construed within this subsystem but that aspects of it are. The trauma may therefore be partially construed by some aspects of the construct system but in a very limited and ineffective way. Identification of constructs which seem to be exclusively connected to the trauma and are not useful in the construal of other life events might therefore add to the evidence for this model of PTSD.

4.3.2 Cognitive and Information Processing Theories of PTSD

The Social-Cognitive theories of PTSD (e.g. Horowitz, 1986 ; Epstein, 1991 ; Janoff Bulman, 1985) are described in Section 1.3.1 of the Introduction chapter. As discussed these theories take as their focus the impact that the trauma has on the person's conceptual system proposing that PTSD occurs as a result of the person being unable to reconcile the trauma with their existing models of the world. Both Epstein and Janoff-Bulman suggest that the experience of the trauma shatters basic beliefs and assumptions about the world. The exploratory analysis in this study suggests that, in line with these theories, the trauma does remain unintegrated and that this state of unintegration shows some degree of association with some of the symptoms of PTSD.

Potential criticisms of these Social-Cognitive theories are firstly, that the nature of the schemata are not clearly described in these theories. Secondly, the process by which beliefs are shattered is not clearly formulated (other than by suggesting that they are shattered). Finally there is the problem of data which suggests that people with a pre-morbid history of psychological difficulties (especially prior PTSD) show greater risk of re-traumatisation (Blanchard et al, 1996 and Kilpatrick et al, 1985) when one might expect that they would have no beliefs about personal invulnerability to shatter.

The Constructivist Model and a personal construct approach in general can deal with such criticisms and problems. The nature of the 'schemata' are clearly defined as constructs the properties of which are clearly formulated in Kelly's theory such that when an event cannot be integrated one might suggest for example, that it does not come into the range of convenience of the person's core constructs or that if it did it would result in intolerable inconsistencies. Sewell et al (1996) also suggest how prior psychological difficulties (especially prior trauma) might increase the risk of PTSD following the experience of trauma in later life. They propose that perhaps previously dormant isolated trauma construct clusters are used to construe the new trauma leading to the symptoms of PTSD. Finally the Social Cognitive theories (particularly those of Epstein and Janoff-Bulman) suggest general assumptions about the world that are shattered as a result of the experience of trauma which

they maintain are applicable generally across participants however this does not appear to be based on research designed to identify such beliefs, to my knowledge. The Constructivist Model does not make such assumptions but suggests in line with Personal Construct Theory that each of us has our own idiosyncratic constructs (the Individuality Corollary) which we use in order to construe experience. In this study one could see, as demonstrated through the individual case illustrations, that participants varied in the constructs they employed, similar themes may have been evident but it is possible that the social -cognitive theories which assume generalised beliefs that are shattered are perhaps oversimplifying cognitive processes involved in the development of PTSD.

The information processing theories (Foa et al, 1992 ; Chemtob et al, 1988 ;Creamer et al ,1992) are discussed in Section 1.3.2 of the Introduction chapter. As discussed these theories focus more upon the cognitive processes which occur in the development and maintenance of PTSD. They propose the existence of some kind of structure in memory (Foa's 'fear network', Chemtob et al's parallel distributed network and Creamer et al's 'traumatic memory network') within which the trauma information is stored. They suggest that intrusion occurs when information from the environment matches (or is reminiscent) of the experiences stored in this memory structure and that resolution occurs when the information in the structure can be integrated with the overall memory store. As suggested previously this formulation has similarities to the Constructivist Model of PTSD and the latter's' proposed isolated trauma construct cluster.

Criticisms levelled at these theories include firstly, the reasons why some people develop PTSD and others do not. Recently Foa & Riggs (1993) suggest that flexibility of schemata is the key factor which relates to the Personal Construct Theory idea that a psychologically healthy person will have a construct system which can accommodate new experiences through modulation or re-construing which does not invalidate core constructs (see Section 1.4.1 of the Introduction chapter). Secondly the information processing theories do not suggest how the schemata proposed by the Social-Cognitive theories fit with their memory structures. The Constructivist Model would perhaps suggest that there is only one kind of structure that of constructs and that what the information processing theories focus upon is the isolated trauma construct cluster and that what the Social Cognitive theories focus upon

are the constructs in the rest of the system that are at risk of invalidation as a result of the traumatic experience.

This last point might also be applicable to Brewin's (1996) 'dual representation theory' described in Section 1.3.3 of the Introduction chapter. He suggests two kinds of representation of the trauma in PTSD - 'situationally accessible memories' (not under voluntary control and connected to the intrusive experiences) and the 'verbally accessible memories' (more under voluntary control and associated with emotion such as guilt and depression). It is possible that these two kinds of representation are comparable to the isolated trauma construct cluster and the rest of the construct system, respectively. In addition, Brewin et al's (1996) idea of premature inhibition of processing in clients who are apparently free of PTSD symptoms but who may go on to relapse or experience delayed onset of PTSD may relate to some of the findings in the construct systems of the three participants interviewed post-therapy. They were all free of PTSD symptoms but all demonstrated very tight construing in their grids, especially participant four, who seemed to have considerably constricted her construing of the world. Such tightness is worrying and, as discussed previously could be suggestive of relapse in the future if the main dimension being used to construe events is invalidated. For this participant in particular then it is possible that in Brewin et al's terms successful integration had perhaps not been achieved but that instead premature inhibition of processing had occurred.

Finally, a significant advantage of the Constructivist Model of PTSD over the cognitive and information processing theories of PTSD is that it is testable. The model postulates variables as potential indicators of the level of integration of the trauma which can be tested against the symptoms of PTSD. Other models do not seem to have achieved this stage, as yet. For example, Creamer et al (1992) in their Cognitive Processing Model of PTSD took scores on the IES as their indicator of processing rather than a non-symptom variable. Similarly with the Constructivist model one can elicit the constructs and, as in this study, attempt to determine whether the trauma is isolated and see how that might change in relation to therapeutic intervention and changes in symptoms of PTSD..

4.3.3 Other Aetiological Models of PTSD

In section 1.2 of the Introduction chapter Biological, Psychoanalytic and Behavioural theories of PTSD were described, obviously there are difficulties in attempting to compare theories resulting from different aetiological backgrounds however they will now very briefly be considered in terms of the Constructivist model and the provisional findings of this study.

The biological theories of PTSD (e.g. Kolb, 1987 ; Van der Kolk, 1994) formulate the disorder at a different level to the more psychological theories of PTSD. However Van der Kolk (1994) does propose that PTSD arises from ineffective processing of the event because the cognitive schemata which he suggests are located in the hippocampus, cannot assimilate the information. This relates to the both the Constructivist Model of PTSD and to the cognitive and information processing theories however it is obviously difficult to compare theories which take as their focus brain structures with those which take constructs or schemata as their focus.

Behavioural theories of PTSD (e.g. Keane et al, 1985) are based on the ideas of learning theory suggesting that PTSD results from a persistent conditioned response to stimuli associated with the trauma. Avoidance symptoms are used as strategies to avoid experiencing the conditioned response but actually exacerbate the problem. Such behavioural theories are much more limited in their formulations of PTSD than both the Constructivist Model and the cognitive and information processing theories and are therefore difficult to compare. Their usefulness lies in the idea of reminders of the trauma leading to affective symptoms and high levels of arousal and their formulation of the reinforcing nature of the avoidance symptoms. In addition most therapies for the treatment of PTSD involve some form of exposure therapy (see Section 1.1.5 of the Introduction chapter).

The psychoanalytic theories of PTSD are perhaps less well-developed. As described in Section 1.2.3 of the Introduction chapter Lindy (1985) proposes that PTSD results from an overwhelming of the

stimulus barrier resulting in the defences of splitting and denial and that recovery involves recall and attribution of meaning to the trauma memories. This theory obviously shares similarities with both the Constructivist Model of PTSD and the cognitive and information processing theories. However, it is possible that the mechanism of splitting (Moore & Fine, 1990) could be understood more clearly in terms of the Constructivist model perhaps as either the formation of isolated construct classes or perhaps links between constructs being lost as a defence against intolerable integration.

4.3.4 Further Issues

To take the last point further one might consider the applicability of the Constructivist model to other disorders that in recent years some researchers and clinicians have suggested may have a trauma basis - most notably Borderline Personality Disorder (BPD) and what is now termed as Dissociative Identity Disorder (DSM-IV, 1994) (previously known as Multiple Personality Disorder). As Bateman & Holmes (1995) suggest many BPD patients fulfil the criteria for a diagnosis of PTSD following childhood sexual or physical abuse. Cromwell et al (1996) suggest also that people suffering from Multiple Personality Disorder have histories of severe abuse and trauma. This evidence has led Fonagy (1991) (in relation to 'theory of mind' ideas) to suggest that in BPD, for example, the traumatised child does not develop the capacity to think about experience and thinking as a (unconscious) defence so that they can avoid thinking about what is being done to them. Dissociative experiences often occur as a result. The Constructivist Model of PTSD suggests that the experience of trauma threatens to invalidate core constructs and it is therefore isolated which can lead to instability, links between constructs being lost and extreme affects. It might be the case that in BPD a similar process happens. Abuse threatens to invalidate core constructs therefor isolated construct clusters develop in order to prevent it from being integrated and invalidating the sense of the self. This happens at a cost as the result might be a fragmented, dissociated sense of self which in construct terms would be very unstable, susceptible to slot rattling and rapid mood change. All these factors are evident in BPD (DSM IV, 1994).

A similar process might be occurring in MPD with the isolated trauma clusters being perhaps more elaborated in themselves (hence the 'personalities') but unintegrated as to do so would result in massive threat of potential invalidation of core constructs in the 'host personality' for example. Cromwell et al (1996) used personal construct methods similar to those used in the Sewell studies and this current research to investigate the construct systems of two patients diagnosed as suffering from MPD. They found that the 'alter' personalities were separated from each other in the construct systems - they were not clustered either around each other or around the host personality although they were often seen as similar to other real people in the patient's environments. The usefulness of the Constructivist Model of PTSD and a personal construct approach in general therefore might not be confined to PTSD but might also be applicable to other trauma based disorders such as those discussed here.

4.4. CLINICAL IMPLICATIONS OF THE STUDY

Brewin et al (1996) suggest that the use of exposure techniques in the treatment of PTSD may not be as effective as techniques which also address the person's understanding of the trauma and the meanings attached to it. This suggestion is supported by the evidence to date of effectiveness of therapies for PTSD (Roth & Fonagy, 1996). In this study the individual case illustrations demonstrated the richness of information about a person's conceptual world that can be elicited using a personal construct approach. The Constructivist Model of PTSD thus allows for an exploration of the person's construction of the trauma which may give indicators for treatment. It may also allow one to examine the ways in which events are usually construed by someone and so suggest where difficulties may lie in the integration of the traumatic event. In turn this might give pointers as to where reconstruction might be needed. In terms of personal construct therapy this might involve tightening and loosening of constructs and experimentation with alternative constructions within the relative safety of the therapeutic relationship (Fransella & Dalton, 1990). Because the repertory grid

method is an individualised procedure it can allow, in clinical practice, for criteria of improvement to be defined on an individual basis. In addition the process of actually doing the repertory grid might for some people involve a reconstruction of the life events and the trauma experienced and in itself could be therapeutic although this was not tested in this study. A personal construct approach which uses methods based upon the Constructivist Model of PTSD may therefore have the potential to inform and enhance the clinical treatment of individuals with PTSD.

In addition such an approach also has potential as a tool for evaluation of PTSD treatments. From the three case illustrations one could see that the trauma was being construed as distant from other life events prior to therapy and following therapy one could see that it appeared to be being construed as less distant from other life events suggesting that it had become more integrated. If further research confirms the reliability and validity of this variable as an indicator of the degree of integration of trauma then it will have potential as an additional indicator of change or even recovery for individuals with PTSD. The repertory grid method might therefore be an extremely useful evaluation technique particularly given the difficulty with self-report symptom questionnaires discussed previously.

In this research the repertory grid was used as a method of eliciting constructs however, this is not the only method used in Personal Construct Theory. The other main method of assessing a person's construct system is through the use of the 'character sketch' (described in Winter, 1992 and Fransella & Dalton, 1990). Such a technique might prove useful in the treatment of people with PTSD for example by asking them to complete a character sketch of how they are now that they are suffering from PTSD, how they view themselves as they were pre-trauma. Such a technique has the potential to provide useful hypotheses about where difficulties in integration of the trauma might be occurring. One might also consider using repertory grids which do not use life events as elements but rather people and one could include elements such as 'me before trauma' and 'me after trauma' again in an attempt to identify areas of difficulty in integration and to indicate where change might be possible.

Finally following the suggestions made in terms of the applicability of a Constructivist approach to other trauma based disorders it is suggested that a repertory grid method like the one employed in this

study might be of use in the treatment of people with BPD for example. Unintegrated methods of construing both events and people could be identified perhaps and indicate suggestions for integration and treatment or provide some insight for such patients into excessive mood swings for example. This has parallels with some the techniques being developed in Cognitive Analytic Therapy by Ryle (e.g. Ryle, 1995) for the treatment of BPD which involved describing and elaborating the different 'self-states' experienced and if possible, working towards integration.

4.5 SUGGESTIONS FOR FURTHER RESEARCH

In terms of further research the first consideration would be to increase the sample size in order to meet the requirements suggested by Cohen (1992) such that the research predictions could be more confidently confirmed or rejected. Judging from the experience of this study further time and resources than were available from the current study would be required for this to be possible. In addition an adequate post-therapy comparison would constitute an even more rigorous test of the Constructivist Model. If it could be shown that changes in grid variables such as the distance of the trauma from other life events and the level of elaboration of the trauma are related to changes in symptoms of PTSD following therapy then this would provide compelling support for the model. Alternatively, if no associations could be found then this would suggest that either the variables are not valid indicators of integration or that the model is an inaccurate representation of the psychological processes involved in PTSD. As discussed in section 4.2 of this chapter, the use of control groups such as a waiting list or a 'normal' comparison would also extend the testing of the model. Finally, a further research design would be to use a number of data points, by interviewing participants and completing repertory grids at various points throughout the therapy. In addition, a long-term follow-up data point would be extremely useful, particularly in view of the case illustrations discussed in this study where although participants were free of symptoms they demonstrated a worrying tightness in their construct systems. Long-term follow-ups would also perhaps allow the

possibility, if this personal construct approach is proved valid, of testing Brewin et al's (1996) idea of premature inhibition of processing.

In addition to refining the operationalisation of the elaboration variable as has been discussed one might also consider adding to the variables used in this study. A variable such as the variability of intensity of participants grids, for example, might be a useful addition. This was used in the Sewell et al (1996) study and is a measure of the flexibility of the construct system. The higher the degree of variability the more the person can construe the world either tightly or loosely as the situation demands. As reported in Section 1.5.1 of the Introduction chapter Sewell et al (1996) found that their PTSD group demonstrated a lower level of variability of intensity than the PTSD group which might be as a result of the experience of the trauma but in view of the results for the non-PTSD group who had experienced the same trauma, could be the reason why this sample developed PTSD in the first place. It would be interesting to see how this variable (which seems to relate, as suggested to Foa & Riggs' (1993) notion that what is important in recovery from PTSD is the availability of 'flexible' schemata) changed, if at all, after therapy. A similar study incorporating some of these changes would therefore be useful.

To widen the scope further future research could explore the possibility of a constructivist approach to other areas. As discussed previously it might be worthwhile exploring the potential of a personal construct theory approach and method (in the form of the repertory grid) in understanding and researching other trauma based disorders such as Borderline Personality Disorder or survivors of childhood abuse.

4.6 CONCLUSIONS

This study represents an exploration of the Constructivist Model of PTSD developed by Sewell and his colleagues. Exploratory data analysis revealed that participants seemed to be viewing the trauma as more distant from other life events than non-trauma events. There was some evidence to suggest that this distance variable showed an association with some of the symptoms of PTSD as measured by the Impact of Events Scale. Further, participants seemed to be rating the trauma more extremely than other events. No effects were found for a further variable, that of the level of elaboration of the trauma, in contrast to the Sewell studies. As discussed these results should be interpreted with caution given the sample size used in this study which falls short of Cohen's (1992) recommendations. However, the provisional results of the study suggest that the Model is worth testing further and has the potential to enhance current psychological theories of and therapies for PTSD. In addition it is suggested that, should further evidence for the validity of the model be obtained, there is the potential for extending a personal construct approach to other trauma-based disorders which may extend our theoretical understanding of the psychological effects of trauma and inform our clinical practice.

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**WEST MIDDLESEX
UNIVERSITY HOSPITAL
NHS TRUST**

15th August 1996

Ms C. Gould,
11, Lea Hall Road,
Leyton,
London
E10 7AR

Dear Ms Gould,

Re **96/311/Gould Personal construct change and post-traumatic stress disorder**

Thank you for your letter of 12th August enclosing your amended information sheet and clarification of your proposed administration of the questionnaires. It was on the basis that you were going to administer all the questionnaires at your interview that the committee had considered the time allocation unrealistic.

I am pleased to be able to give you approval to commence your study and wish you every success with your project.

Please note that approval is subject

- a) to your notifying the committee should a change of researcher take place during the study
- b) to your allowing a member of the committee access to your records for audit purposes if required
- c) to your submitting a short report on completion of the study or at 12 monthly intervals from the acceptance date for work in progress. **Please use the local reference number in any future correspondence with us.**

Yours sincerely,

Dr Janet Baldwin,
Chairman, Hounslow District Ethical Committee

Chairman: Brian Blackler
Chief Executive: Christine Outram

8 January 1997
Ref: HL/CH

Clair Gould
Clinical Psychologist in Training
Psychotherapy Department
St Ann's Hospital
St Ann's Road
Tottenham
London N15

Dear Ms Gould

393 - Personal construct change and psychological therapy for post-traumatic stress disorder

I write to advise you that the above study, submitted to the LREC, **has been approved**, Chairs' action having been taken.

Please quote the above number on any future correspondence.

The Committee look forward to receiving a copy of your interim report in six months time or at the end of your project if this is sooner.

Yours sincerely



Mrs H Lipson
Chair, Local Research Ethics Committee
Enfield & Haringey Health Authority

Please reply to:

☐ Holbrook House, Cockfosters Road
Barnet, Herts. EN4 0DR
Tel: 0181-440 9384
Fax: 0181-449 5945

☒ Alexander Place, Lower Park Road
New Southgate, London N11 1ST
Tel: 0181-361 7272
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☐ 85 Tanners End Lane, Edmonton
London N18 1SB
Tel: 0181-803 1444
Fax: 0181-887 0037

CONSTABULARY

Professor David Winter
Department of Clinical Psychology
Napsbury Hospital
London Colney
Nr St Albans
Herts AL2 1AA

Date: 25 June 1996

Tel:


Dear Professor Winter

Research on Treatment of Post Traumatic Disorder

Thank you for your letter dated 14 June 1996 regarding the proposed research by Claire Gould, Clinical Psychologist in Training.

I have no objections to her proposals provided that the staff of Constabulary who are to be included in this project are made aware of that fact and that they are given the opportunity to decline to participate.

Yours sincerely


Head of Human Resources

cc Welfare

Consent Form for Psychological Research Project.

Changes in Perception of Life Events Following Psychological Therapy for Post-Traumatic Stress Disorder

You are being asked to take part in this research project. The information below explains, in ordinary language what will happen to you if you agree to take part. It describes any risks or discomfort you may have and it also explains what we hope to learn as a result of your taking part.

You should not take part if you do not wish to do so. If you do not decide to take part your treatment will not be affected by your decision. You may also withdraw at any time during the research project, without giving a reason, or affecting your future treatment.

This research is concerned with people's perceptions of traumatic life events compared to their perceptions of other non-traumatic life events.

I would like to explore people's perceptions of both traumatic and non-traumatic life events both before and after psychological therapy for post-traumatic stress disorder in order to examine how those perceptions may change as a result of therapy. This research will therefore contribute to our understanding of the psychological processes involved in the development of post-traumatic stress disorder and may have implications for the development of more effective assessment and treatment methods.

The research involves completing three symptom questionnaires taking approximately ten minutes to complete and to be filled in both before and after therapy. Participants would also be asked to take part in one interview before and one interview after therapy, each lasting approximately one hour, to discuss their perceptions of both the traumatic event and other important events in their lives. Participants may find it distressing at times to talk about the traumatic event. However, other happy and positive life events will also be discussed and the interviewer will be available to talk to participants at the end of the interview about anything they found particularly distressing or stressful.

If you do decide to take part in this research then please sign below, you will then be allocated a code number and the researcher - Claire Gould - will be the only person who knows which name corresponds to which code number.

I **agree to take part in the research**
outlined above.

The nature, purpose and possible consequences of taking part have been explained to me by Claire Gould.

Signed

Date

Witness

PATIENT INFORMATION SHEET

You are being asked to take part in this research project. The information below explains in ordinary language what will happen to you if you agree to take part ; it describes any risks or discomfort you may have, and it also explains what we hope to learn as a result of you taking part.

The aim of this research is to look at the way in which people with Post-Traumatic Stress Disorder view the traumatic event that they have been through.

I would like to explore the way you view the traumatic event you have experienced and how you view other events in your life. I would also like to explore how your views may change after you have had psychological therapy for Post-Traumatic Stress Disorder.

This research will add to what we know about the psychological processes that happen when you develop Post-Traumatic Stress Disorder. It may also help us to plan better assessment and treatment for people with Post-Traumatic Stress Disorder.

You will be asked to take part in two interviews. The first will be before you start therapy and the second will be after you have finished therapy. Each interview will take about an hour's time. You may find it upsetting at times to talk about the traumatic event in these interviews but we will also talk about other happy and positive life events. The interviewer will also be available at the end of each interview for you to talk about anything you found upsetting.

As part of the research I will also ask the person who assessed you at the Traumatic Stress Clinic for your scores on various questionnaires used by the service both before and after therapy.

A copy of this information sheet and consent form will be given to you to keep.

You should not take part if you do not wish to do so. If you do decide to take part, you should tell the doctor about any other research projects you have volunteered for in the past 12 months. If you decide not to take part and you are a patient, your treatment will not be affected by your decision. You may also withdraw at any time during the trial, without giving a reason, or affecting your future treatment.

This research has been approved by the District Ethics Committee.

CONSENT

I
agree to take part in the trial outlined above.

The nature, purpose and possible consequences of taking part have been explained to me by Claire Gould.

Signed _____ **Date** _____

Witness

INFORMATION SHEET - "Personal Construct Change and Psychological Therapy for Post-Traumatic Stress Disorder"

What is the aim of this research?

The aim of this research is to look at the way in which people with Post-Traumatic Stress Disorder view the traumatic event that they have been through.

I would like to explore the way you view the traumatic event you have experienced and how you view other events in your life. I would also like to explore how your views may change after you have had psychological therapy for Post-Traumatic Stress Disorder.

What benefits will this research bring?

This research will add to what we know about the psychological processes that happen when you develop Post-Traumatic Stress Disorder. It may also help us to plan better assessment and treatment for people with Post-Traumatic Stress Disorder.

What will I be asked to do?

You will be asked to take part in two interviews. The first will be before you start therapy and the second will be after you have finished therapy. Each interview will take about an hour's time. You will also be asked to fill in three questionnaires before coming to each interview which should take about ten minutes to complete.

Will this research cause me any discomfort?

You may find it upsetting at times to talk about the traumatic event in these interviews but we will also talk about other happy and positive life events. The interviewer will also be available at the end of each interview for you to talk about anything you may have found upsetting.

What if I don't want to take part?

You should not take part in this research project if you do not wish to. If you decide not to take part your treatment will not be affected by your decision. You may also withdraw at any time during the research, without giving a reason, or affecting your future treatment.

UNIVERSITY COLLEGE LONDON D.CLIN.PSYCH. RESEARCH PROJECT

CONSENT FORM

"Personal Construct Change and Psychological Therapy for Post-Traumatic Stress Disorder"

I (name)

of (address)

I confirm that the nature and demands of the research have been explained to me and I understand and accept them. I also understand that I may withdraw from the research project if I find that I do not wish to continue for any reason with no diminishing of caring for me.

Signed

Date

Investigators Statement

I have explained the nature, demands and foreseeable risks of the above research to the subject.

Signature

Date

Clinical Psychology Research Project

Changes in Perceptions of Life Events Following Psychological Therapy for Post-Traumatic Stress Disorder

Dear

Thank you for agreeing to participate in this research project. Before your interview on the at please could you think of fifteen life events you have experienced which would fit the following categories. Please think of a different life event for each category. Please write down the life event under each category and please bring this piece of paper with you to the interview. Thank you.

- 1) The best thing that happened to you in primary school.
- 2) The worst thing that happened to you in primary school.
- 3) The best thing that happened to you in adolescence.
- 4) The worst thing that happened to you in adolescence.
- 5) The best thing that happened to you in early adulthood (20's) in your professional life.
- 6) The best thing that happened to you in early adulthood (20's) in your personal life.
- 7) The worst thing that happened to you in early adulthood (20's) in your professional life.
- 8) The worst thing that happened to you in early adulthood (20's) in your personal life.
- 9) The best thing that has happened to you in your life in the last two years.
- 10) The worst thing that has happened to you in your life in the last two years.
- 11) The traumatic event you have experienced.
- 12) An event, positive or negative, that has happened since the traumatic event.
- 13) Another event, positive or negative that has happened since the traumatic event.
- 14) The best event that could happen to you in the future.
- 15) The worst event that could happen to you in the future.

APPENDIX F-8R

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